UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT

BIOENVIRONMENTAL ENGINEERING

AFSC 4B0X1

AFPT 90-4B0-080

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TABLE OF CONTENTS

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TABLE OF CONTENTS
(Tables, Figures, Appendices)

TABLE OF CONTENTS (CONTINUED)
(Tables, Figures, Appendices)

TABLE OF CONTENTS (CONTINUED)
(Tables, Figures, Appendices)

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PREFACE

This report presents the results of an Air Force occupational survey of the Bioenvironmental Engineering (AFSC 4B0X1) career ladder. Authority for conducting occupational surveys is contained in AFI 36-2623. Computer products used in this report are available for use by operations and training officials.

First Lieutenant Brandon K. Doan, Inventory Development Specialist, developed the survey instrument. Second Lieutenant David A. Huber, Occupational Analyst, analyzed the data and wrote the final report. Mrs. Jeanie C. Guesman provided computer programming support, and Mr. Richard G. Ramos provided administrative support.

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to the Air Force Occupational Measurement Squadron, Attention: Chief, Occupational Analysis Flight (OMY), 1550 5th Street East, Randolph AFB Texas 78150-4449 (DSN 487-6623).

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SUMMARY OF RESULTS

1. *Survey Coverage*: Survey results are based on responses from 670 Bioenvironmental Engineering personnel. This represents 69 percent of the total assigned AFSC 4B0X1 population. Incumbents were surveyed across all of the major commands, and the sample includes personnel from all skill levels.

2. *Career Ladder Structure*: Six independent jobs (IJ) and two job clusters were identified in the career structure analysis. The IJs were Hazardous Materials (HAZMAT) Pharmacy, Contingency Support, Training, Environmental Protection, Radiological Health, and Supply. The two job clusters were the Industrial Hygiene and Supervisory clusters. This structure is similar to the career structure described in the 1991 survey.

3. *Career Ladder Progression*: The 3- and 5-skill level personnel perform technical functions, while the 7-skill level members are both technicians and supervisors. Members at the 9- and 0-skill level positions are dedicated to supervisory and training activities.

4. *AFMAN 36-2108 Specialty Descriptions*: When survey data were compared to AFMAN 36-2108 *Specialty Descriptions*, the manual accurately reflected the career progression pattern for members in this AFSC.

5. *Training Analysis*: A match of survey data to the AFSC 4B0X1 Specialty Training Standard (STS) provided support for the matched STS items. Some items were recommended for deletion. There were items that were recommended for change in proficiency code. Also, there were tasks with high percentages of members performing, but were not matched to the STS. These tasks were recommended for inclusion into the STS.

6. *Job Satisfaction Analysis*: Overall, the survey respondents expressed high job satisfaction. The "reenlistment intentions" indicator for second-term members was high. All other satisfaction indicators show that the Bioenvironmental Engineering personnel are quite satisfied with their jobs.

7. *Implications*: No drastic changes have occurred with AFSC 4B0X1 since the survey published in 1991.

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OCCUPATIONAL SURVEY REPORT (OSR)
BIOENVIRONMENTAL ENGINEERING CAREER LADDER
(AFSC 4B0X1)

INTRODUCTION

This report presents the results of an occupational survey of the Bioenvironmental Engineering specialty completed by the Occupational Analysis Flight, Occupational Measurement Squadron, in November 1996. This survey was conducted at the request of HQ HSD/SOSP, Brooks AFB TX. The previous survey was completed in April 1991.

Background

The AFSC 4B0X1 OSR can assist technical training personnel in updating the training programs and evaluating the current classification structure for AFSC 4B0X1. The need for specialized training for certain major command (MAJCOM) or skill-level groups can be determined through interpretation of the data.

According to AFMAN 36-2108 *Specialty Descriptions* for AFSC 4B0X1, effective 31 October 1993, Bioenvironmental Engineering personnel perform and manage Bioenvironmental engineering activities in the fields of industrial hygiene, occupational health, radiological health, and environmental protection. These personnel prepare and review reports to aid in ensuring that programs are being carried out and that control measures are adequate. For members entering the AFSC 4B0X1 career ladder, a minimum score in the General category of 48 is required on the Armed Services Vocational Aptitude Battery test. Also, Normal color vision as defined in AFMAN 48-123, Medical Examination Standards, and a minimum age of 18 years are required.

The current AFSC 4B0X1 training program consists of an entry-level course (B3ABY4B031-001) conducted at Brooks AFB TX and four 7-skill level courses. Course B3ABY4B031 is 17 weeks long and includes instruction in mathematics, chemistry, physics, ecology and toxicology, analytical procedures, and waste management.

The 7-skill level courses include Environmental Protection (B3AZY4B0X1-001), Industrial Radiological Hazards (B3AZY4B0X1-004), Industrial Hygiene Measurements (B3AZY4B0X1-009), and Bioenvironmental Engineering Readiness (B3AZY4B0X1-010). These courses cover a range of topics including water, air, and solid waste pollutants, drinking water management, evaluation and control of radiation, industrial toxicology, workplace hazards, Risk Assessment

Coding, and peacetime/wartime contingencies. All of these courses are held at the School of Aerospace Medicine (SAM), Brooks AFB TX. The training analysis section of this report provides data useful for evaluating the AFSC 4B0X1 STS.

SURVEY METHODOLOGY

Data for this survey was collected by administering USAF Job Inventory (JI) AFPT 90-4B0-080, dated September 1995. During the initial inventory development, 31 subject-matter experts (SMEs) from 6 operational bases and 1 training unit were interviewed. The developer also reviewed pertinent career ladder documents, the previous inventory, and the OSR to prepare a task list. This task list comprised material from AFSC 4B0X1. Bases visited during this development included:

BASE	UNIT	REASON FOR VISIT
Brooks AFB	362 TRS/DOP	Basic course location
Lackland AFB	WHMC/ISOE	Health support and combat readiness
Fairchild AFB	92 MG/SGPB	AMC base
Vandenberg AFB	30 MG/SGPB	AFSPC base
Seymour Johnson AFB	335 FS/DOS	ACC base
Kelly AFB	76 MDOS/SGPB	Bioenvironmental support

The resulting JI lists 577 tasks, grouped into 13 duty titles. The inventory also contains a number of background questions relating to duty AFSC (DAFSC), time in present job, total active military service, work area assigned, job title, support equipment used, calculations performed, and job satisfaction information.

Survey Administration

From September 1995 through May 1996, the inventory booklets were administered to personnel eligible for the survey. Base Training Offices located at 168 bases across various Air Force MAJCOMs gave the inventory booklets to AFSC 4B0X1 personnel with DAFSCs of 4B031, 4B051, 4B071, 4B091, and 4B000. The respondents were picked from a computer generated mailing list from the Air Force Personnel Center. Personnel not considered eligible to

take part in the survey were those who were in transition to a permanent change of station, those retiring at the time of the survey, those hospitalized, and those who had not been in their present job for a period of 6 weeks.

All eligible members who completed an inventory booklet first completed an identification and background information section. In the second step, the personnel went through the booklet and checked all tasks performed on their present job. After checking the performed tasks, they then rated the tasks on a scale from 1 to 9 based on the relative amount of item they spent on that task compared to all others. A rating of 1 indicated a very small amount of time was spent and a rating of 9 indicated a large amount of time was spent on the task. To determine relative time spent on each task checked by a respondent, the sum of the ratings were assumed to account for 100 percent of his time on the job. All respondents' were added, then each rating was divided by the sum of all responses. Then, this quotient was multiplied by 100 to get the relative percent time spent for each task. This procedure allowed a comparison of percent members performing and relative percent time spent on tasks and groups of tasks.

Survey Sample

The JI booklets mailed to the participants in the survey were monitored to ensure the final survey sample would be representative of the MAJCOM and paygrade groups. Table 1 lists the percentage distribution by MAJCOM of assigned personnel in the career ladder as of September 1996. Also shown in Table 1 is the percentage distribution by MAJCOM of the final population. Table 2 shows the survey sample representation across paygrades. The tables show that representation by MAJCOM and paygrade is good. The 670 respondents included in the survey represent 69 percent of the total 974 4B0X1 personnel assigned to the career ladder (as of September 1995).

TABLE 1

COMMAND REPRESENTATION OF AFSC 4B0X1 SURVEY SAMPLE

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
AFMC	25	28
ANG	19	11
ACC	15	18
AMC	12	11
AETC	9	10
PACAF	8	8
AFSPC	6	6
USAFE	5	5
OTHER	1	3

TOTAL ASSIGNED: 974*
TOTAL NUMBER ELIGIBLE: 888
TOTAL IN SAMPLE: 670
PERCENT OF ASSIGNED: 69%
PERCENT OF ELIGIBLE: 75%

* As of April 1995

NOTE: AFSC 4B0X1 personnel not eligible for survey include those members with discharge, retirement, PCS, or hospital status, and those having less than six weeks in their present job.

TABLE 2

PAYGRADE REPRESENTATION OF AFSC 4B0X1 SURVEY SAMPLE

PAYGRADE	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
E-9	1	1
E-8	1	1
E-7	15	12
E-6	15	16
E-5	23	24
E-4	25	28
E-3	12	14
E-2	4	4
E-1	4	0

* As of April 1995

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected senior AFSC 4B0X1 personnel (generally E-6 or E-7 craftsmen) also completed a second booklet for either training emphasis (TE) or Task Difficulty (TD). These booklets were processed separately from the JIs. This information is used in a number of different analyses discussed in more detail in the report.

Training Emphasis (TE). TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 47 senior AFSC 4B0X1 NCOs who completed booklets were asked to select tasks they felt should be taught to entry-level personnel in some sort of structured training and then indicate how much training emphasis these tasks should receive, from 1 (extremely low emphasis) to 9 (extremely high emphasis). Structured training is defined as training provided at resident technical schools, field training detachments, mobile training teams, formal on-the-job training (OJT), or any other organized training method. The rater agreement among these 47 raters was high. The average TE rating was 3.57, with a standard deviation of 1.71. Any task with a TE rating of 5.28 is considered to have high TE.

Task Difficulty (TD). TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 54 senior NCOs who completed TD booklets were asked to rate the difficulty of each task using a 9-point scale (extremely low to extremely high). Interrater reliability was high. Ratings were standardized so tasks have an average difficulty of 5.00 and a standard deviation of 1.00. Any task with a TD rating of 6.00 or above is considered difficult to learn.

Automated Training Indicators (ATI). To help training personnel focus on tasks which are most appropriate for entry level training, an additional factor, the Automated Training Indicator (ATI) was assigned to each task in the inventory. A computer program considered percent first enlistment (1-48 months TAFMS) performing, TE and TD ratings, and the Course Training Decision Table found in AETCI 36-2601, to determine the ATI. The ATI value for each task corresponds to 1 of the 18 training decisions on the table. The decision table and explanation of ATIs precede the listing of tasks in descending order of ATI in the training extract. Training personnel should focus on tasks with an ATI of 18, which suggests these tasks should be in the entry-level course.

SPECIALTY JOBS
(Career Ladder Structure)

The structure of jobs in the Bioenvironmental Engineering career ladder were based on the similarity of tasks performed and percent time spent. To aid in determining career ladder structure, an automated job clustering program compares job descriptions for individuals in the

survey sample. The automated job clustering program then selects the most similar job descriptions based on tasks performed and the time spent on those tasks. The computer program then finds all other individuals that are similar and adds them to the group. The program continues to group individuals together or separates them into other groups. The program continues this process until all members are grouped. The result is a pattern of jobs that make the 4B0X1 career ladder.

The basic group used in the heirarchical clustering process is the *Job*. When two or more jobs have a substantial degree of similarity in tasks performed and time spent performing tasks, they are grouped together and identified as a *Cluster*. The structure of the career ladder is then defined in terms of jobs and clusters of jobs.

Structure Overview

In this survey, six jobs and two clusters were defined. These are listed and the descriptions are provided. The stage number (ST) beside each job title is a computer generated code number, and the letter N within parentheses corresponds to the number of personnel in each group.

I. HAZARDOUS MATERIALS (HAZMAT) PHARMACY SPECIALISTS JOB (ST062, N=7)

II. INDUSTRIAL HYGIENE CLUSTER (ST039, N=486)

- A. Entry Level Job (ST053)
- B. Core Job (ST105)
- C. Water Program Specialists (ST104)
- D. Supervisory Industrial Hygienists (ST089)

III. CONTINGENCY SUPPORT JOB (ST066, N=7)

IV. SUPERVISORY CLUSTER (ST041, N=45)

- A. First-Line Supervisor (ST080)
- B. Environmental Protection Water Supervisors (ST135)
- C. Supply Management Supervisors (ST107)

V. TRAINING JOB (ST064, N=6)

VI. ENVIRONMENTAL PROTECTION JOB (ST050, N=41)

VII. RADIOLOGICAL HEALTH JOB (ST067, N=9)

VIII. SUPPLY JOB (ST140, N=7)

The AFSC 4B0X1 personnel forming these clusters and jobs account for 91 percent of the survey sample. The remaining 9 percent are listed as "not grouped." These 62 personnel, referred to as isolates, perform sets of tasks that differ from those tasks performed by the identified groups. Because of the differences in tasks performed, these personnel could not be merged with any identifiable job (job title).

Two tables in this section provide background information about the clusters and jobs mentioned. Table 3 displays selected background information, such as DAFSC distributions across each group, average months in service (TAFMS), average number of tasks performed, and percent of group members supervising. The data in Table 4 details the relative amount of time spent across each of the 13 duties for the identified survey groups. Also included in this report is an Appendix A listing tasks performed by members in each of the jobs identified.

CAREER LADDER STRUCTURE

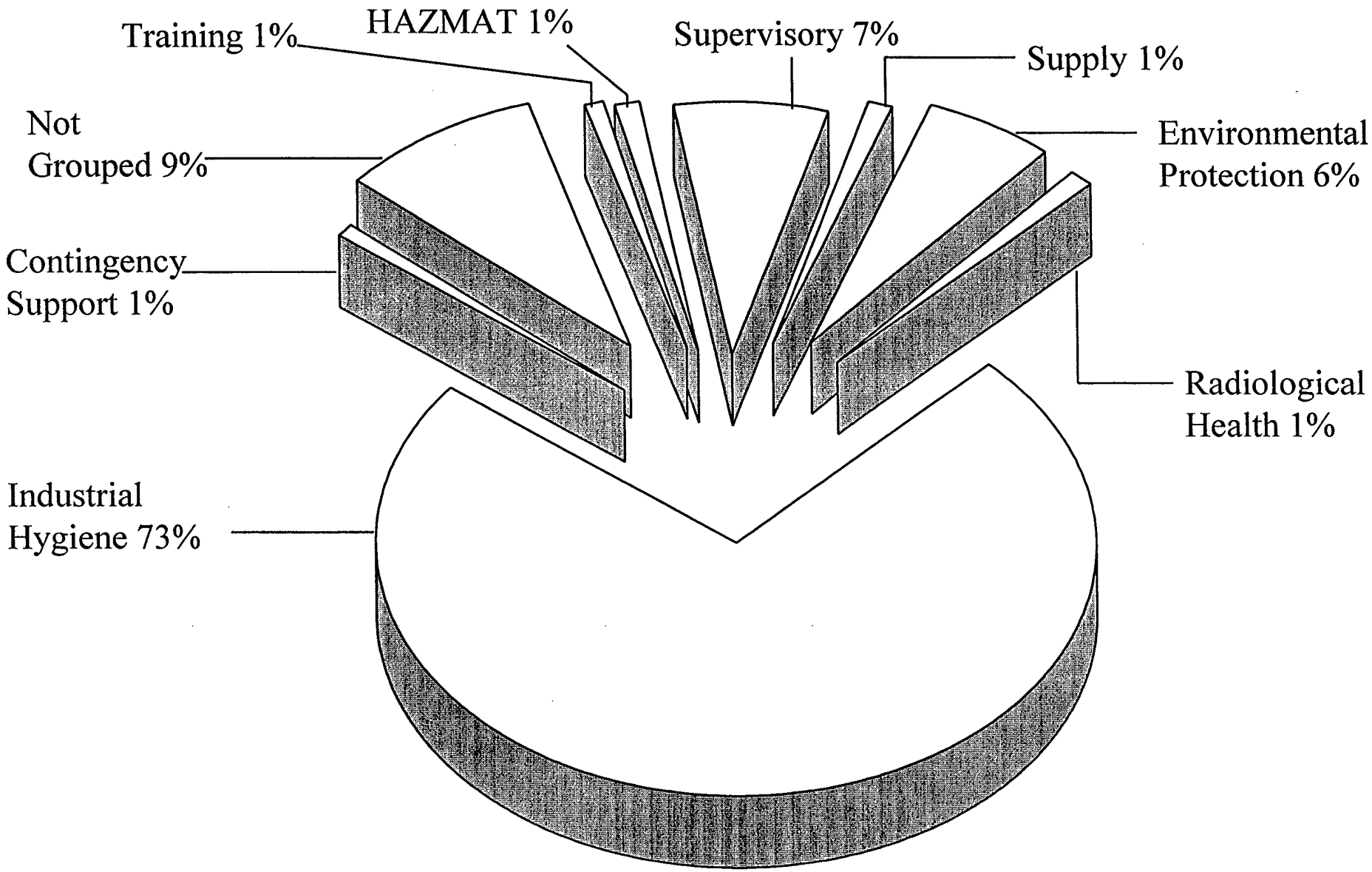

FIGURE 1

TABLE 3

SELECTED BACKGROUND DATA FOR 4B0X1 CAREER LADDER JOBS

	HAZMAT (ST062)	INDUSTRIAL HYGIENE (ST039)	CONTINGENCY SUPPORT (ST034)	SUPERVISORY (ST041)
NUMBER IN GROUP	7	486	9	45
PERCENT OF TOTAL SAMPLE	1%	73%	1%	7%
PERCENT CONUS	100%	84%	100%	89%
ACTIVE DUTY DAFSC DISTRIBUTION (PERCENT RESPONDING)				
4B031	14%	25%	0%	2%
4B051	72%	56%	0%	21%
4B071	14%	17%	100%	69%
4B091	0%	1%	0%	4%
4B000	0%	1%	0%	4%
COMPONENT STATUS				
ACTIVE DUTY	100%	88%	14%	100%
GUARD	0%	12%	86%	0%
PREDOMINATE PAYGRADE(S)	E5	E4-E5	E5-E7	E5-E7
AVERAGE MONTHS IN CAREER LADDER	110	88	108	128
AVERAGE MONTHS IN SERVICE	142	99	82	193
PERCENT IN FIRST ENLISTMENT	14%	12%	11%	2%
AVERAGE NUMBER TASKS PERFORMED	28	173	94	96
PERCENT SUPERVISING	28%	45%	11%	87%

TABLE 3 (CONTINUED)

SELECTED BACKGROUND DATA FOR 4B0X1 CAREER LADDER JOBS

	TRAINING (ST035)	ENVIRONMENTAL PROTECTION (ST050)	RADIOLOGICAL HEALTH (ST067)	SUPPLY (ST073)
NUMBER IN GROUP	6	41	10	8
PERCENT OF TOTAL SAMPLE	1%	6%	1%	1%
PERCENT CONUS	83%	80%	78%	86%
ACTIVE DUTY DAFSC DISTRIBUTION (PERCENT RESPONDING):				
4B031	0%	65%	12%	29%
4B051	67%	33%	44%	57%
4B071	33%	2%	44%	14%
4B091	0%	0%	0%	0%
4B000	0%	0%	0%	0%
COMPONENT STATUS:				
ACTIVE DUTY	100%	98%	100%	100%
GUARD	0%	2%	0%	0%
PREDOMINATE PAYGRADE(S)	E5-E6	E2-E3	E5	E4-E5
AVERAGE MONTHS IN CAREER LADDER	133	42	108	85
AVERAGE MONTHS IN SERVICE	165	49	136	98
PERCENT IN FIRST ENLISTMENT	0%	5%	10%	25%
AVERAGE NUMBER TASKS PERFORMED	52	77	79	22
PERCENT SUPERVISING	57%	15%	20%	0%

TABLE 4

PERCENT TIME SPENT ON DUTY BY JOB*

		HAZMAT	INDUSTRIAL HYGIENE CLUSTER	CONTINGENCY SUPPORT	SUPERVISORY CLUSTER
A	Monitor drinking water, pools, or spas	**	6	8	3
B	Performing Environmental Monitoring	3	6	2	2
C	Conducting Radiological Health Programs	1	6	2	1
D	Performing Bioenvironmental support of missile ops	**	**	**	**
E	Conducting industrial hygiene programs	59	50	16	14
F	Conducting respiratory protection (RP) programs	**	5	1	1
G	Performing or practicing wartime disaster operations	9	5	36	2
H	Performing or practicing peacetime disaster operations	1	1	3	1
I	Performing medical readiness activities	1	2	14	2
J	Performing management or supervisory activities	17	11	1	54
K	Performing training activities	4	3	13	9
L	Performing general administrative and technical order systems	4	1	**	4
M	Performing general supply and equipment activities	**	3	5	6

* Columns may not add to 100 percent due to rounding

** Indicates less than 1 percent

TABLE 4 (CONTINUED)

PERCENT TIME SPENT ON DUTY BY JOB*

		TRAINING	ENVIRONMENTAL PROTECTION	RADIOLOGICAL HEALTH	SUPPLY
A	Monitor drinking water, pools, or spas	1	57	3	**
B	Performing Environmental Monitoring	**	20	3	5
C	Conducting Radiological Health Programs	3	2	49	2
D	Performing Bioenvironmental support of missile ops	**	**	**	**
E	Conducting industrial hygiene programs	2	11	4	1
F	Conducting respiratory protection (RP) programs	1	1	**	**
G	Performing or practicing wartime disaster operations	2	2	4	**
H	Performing or practicing peacetime disaster operations	**	**	3	**
I	Performing medical readiness activities	**	2	1	4
J	Performing management or supervisory activities	35	3	12	12
K	Performing training activities	45	1	8	5
L	Performing general administrative and technical order systems	6	1	4	7
M	Performing general supply and equipment activities	5	1	10	64

* Columns may not add to 100 percent due to rounding
** Indicates less than 1 percent

Job Descriptions

I. HAZARDOUS MATERIALS (HAZMAT) PHARMACY JOB (ST062, N=7). The seven members in this job represent 1 percent of the survey sample. Their primary job involves industrial hygiene program tasks (specifically assigning and reviewing issue exception (IEX) codes). As shown in Table 4, 59 percent of this group's time is spent on industrial hygiene programs. Another 17 percent is devoted to management/supervisory activities (duty titles E and J). Some tasks commonly performed by HAZMAT members are:

assign chemical issue exception (IEX) codes
research Material Safety and Data Sheets (MSDSs)
track hazardous materials
review or update IEX code listings
monitor IEX coded materials
establish chemical IEX coding procedures
direct medical portion of IEX code program for hazardous materials

Members of the HAZMAT job have an average of 142 months TAFMS, and 28 percent are supervising. Also, Table 3 shows that the members of the HAZMAT job only perform an average of 28 tasks, which may reflect the limitations of their jobs. These members are of the 3-, 5-, and 7-skill levels, and 14 percent of the members are in their first enlistment. They have an average 110 months experience in the career field.

II. INDUSTRIAL HYGIENE CLUSTER (ST039, N=486). Members of this cluster spend half their time on industrial hygiene programs (Duty E). Also, they spend some of their time (11 percent) managing or supervising others (Duty J). Some of the tasks performed are:

prepare annual industrial hygiene reports
construct or maintain industrial case files, other than tab "F"
inventory chemicals
research Material Safety and Data Sheets (MSDSs)
evaluate shop HAZCOM programs
prepare baseline industrial hygiene reports
identify hazardous noise sources
perform noise dosimetry

Personnel in this cluster average 99 months TAFMS and 45 percent are supervising others. These personnel hold 3- to 00-skill levels and are in E-2 through E-8 paygrades. Thirty-one percent of the personnel in this cluster are in their first enlistment. The members perform an average of 173 tasks.

Within this cluster, there are four jobs. There are entry level workers who are predominately 3- and 5-skill level personnel holding the paygrades of E-2 through E-6. This group averages 52 months TICF and performs an average of 58 tasks. The members making up this job spend the majority of their time (74 percent) conducting industrial hygiene programs (Duty Title E). Other time is spent conducting radiological health programs, performing medical readiness programs, and performing or practicing wartime disaster operations (Duty Titles C, I, and G). This position is very introductory and very few personnel are supervising (11 percent). The majority of personnel in this cluster perform the core work. Having more TICF (average of 94 months) and TAFMS (average of 108 months), they are assigned more tasks than the entry level workers. The average number of tasks assigned to the core job worker jumps dramatically to 196. Table 3 also indicates that these core job workers hold higher skill levels than do the entry level workers: skill levels mostly in the 5- and 7-skill level range. Group members spend 46 percent of their time conducting industrial hygiene programs (Duty E), but also participate in tasks from other duties, such as performing management and supervisory activities, monitoring drinking water, pools, or spas, and performing environmental monitoring (Duties J, A, and B). Proof of experience also is seen in the amount of members who are currently supervising. Fifty-two percent of the members indicate that they currently supervise other 4B0X1 personnel. There are those who are involved in the industrial hygiene program, but concentrate efforts on industrial water programs. They still spend a large part of their time (35 percent) conducting industrial hygiene programs (Duty E), but also devote 28 percent of their time to monitoring drinking water, swimming pools, or spas (Duty A). This group of personnel averages 60 months TAFMS and 56 months TICF. The average number of tasks performed is also quite high at 166. Twenty-two percent report supervising others. Members of the last job in the Industrial Hygiene Cluster not only conduct industrial hygiene programs (where 28 percent of their time is spent), but also take an active role in performing management and supervisory activities (23 percent of the time is utilized). They also spend time performing environmental monitoring, monitoring drinking water, swimming pools, or spas, and conducting radiological health programs (Duties B, A, and C). As the average TICF (130 months) and TAFMS (147 months) increase, so do the average number of tasks performed (294). The dominant skill level for these personnel is a 7-skill level and the paygrades are mostly E-6 and E-7. As Table 3 shows, 76 percent of the members in this group are supervising other 4B0X1 personnel.

III. CONTINGENCY SUPPORT JOB (ST066, N=7). The 7 members (all but one of whom are Guard members) of this job spend nearly 36 percent of their time (more than 4 times greater than any other reported group) performing or practicing wartime disaster operations (Duty G). Some of the other duties performed by contingency support personnel are conducting industrial hygiene programs, performing medical readiness activities, and performing training activities (Table 4, Duties E, I, and K). Some of the predominate tasks performed by these members are:

don or doff personal protective equipment
maintain personal mobility bags and kits
brief field officials concerning potential health hazards
administer or practice basic first aid
determine field water potability
evaluate methods used to protect water under field conditions
identify water sampling requirements to determine contamination of water systems
direct or advise in direction of wartime decontamination operations

The seven members have 5- and 7-skill levels and hold paygrades of E-3, E-5, and E-6. These members indicate a TAFMS of 74 months and none report to be supervising others.

IV. SUPERVISORY CLUSTER (ST041, N=45). The 45 members of this cluster spend a large portion of their time (54 percent) performing management and supervisory activities. An additional 14 percent of their time is used in conducting industrial hygiene programs. Some representative tasks performed by the supervisory cluster are:

supervise military personnel
determine or establish work assignments or priorities
counsel subordinates concerning personal matters
participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting
interpret policies, directives, or procedures for subordinates
conduct general meetings, such as staff meetings, briefings, conferences, or workshops
establish performance standards for subordinates
direct administrative functions

Personnel in this cluster perform an average of 96 tasks. Eighty-seven percent indicate that they supervise other personnel. As a cluster, the 45 members have an average of 193 months TAFMS, the highest of any job or cluster. The average time in the career field is 128 months. Paygrades for this cluster range from E-4 to E-9. Skill levels in this cluster also vary, ranging from the 3- to the 00-skill level (with the majority of personnel holding a 7-skill level).

Within this cluster there are three different jobs. There are First-Line Supervisors who spend large portions of their time performing management and supervisory activities. They also spend time conducting industrial hygiene programs, training, and monitoring drinking water, swimming pools, or spas. There are a number of Environmental Protection Water Supervisors

who are distinguished by the time they spend performing environmental monitoring tasks. There is also a group of Supply Management Supervisors who spend more time on general supply and equipment activities.

V. TRAINING JOB (ST064, N=6). Training specialists, who make up the smallest job, spend 45 percent of their time performing training activities, nearly 3 and 1/2 times more than any other job or cluster (see Table 4). The average number of tasks performed by training specialists is 51, indicating that this is a limited job. Some of the predominate tasks performed by these members are:

develop training materials for aids
conduct formal course classroom training
evaluate progress of trainees
develop formal course curricula or plans of instruction (POIs)
determine training requirements
plan or schedule training
procure training aids, space or equipment
evaluate effectiveness of training programs, plans, or procedures

The six members who make up this job are all very experienced personnel, with paygrades ranging from E-5 to E-7, and 5- and 7-skill levels. Their average TICF is slightly over 10 years (121 months) and their average TAFMS is near the 159 month mark. Only 50 percent of the members of the job type formally supervise others.

VI. ENVIRONMENTAL PROTECTION JOB (ST050, N=41). The 41 members of this job specialize in water programs. Their time is spent monitoring drinking water, swimming pools, or spas (57 percent), performing environmental monitoring (20 percent), and conducting industrial hygiene programs (11 percent). Some of the common tasks performed by the environmental specialists are:

collect potable water samples
perform pH determinations
perform chlorine level determinations
record results of pH or disinfectant residuals
record results of bacteriological analyses of water samples
collect bulk water samples
prepare water samples for shipment
transport water samples

The members of the job average 77 tasks. They are mostly E-2s and E-3s and have 3- and 5-skill levels. These people average 49 months TAFMS, 42 of those months have been spent in the career field. Most of the personnel (71 percent) are in their first enlistment. Fifteen percent of the personnel are currently supervising others.

VII. RADIOLOGICAL HEALTH JOB (ST067, N=9). Personnel in the radiological health job are distinguished by specialization in Duty C, Conducting Radiological Health Programs (where 49 percent of their time is spent). Time spent in this duty is nearly 8 times greater than any other job or cluster (see Table 4). Members also perform management and supervisory activities (Duty J), and participate in general supply and equipment activities (Duty M). The group performs an average 86 tasks, some of which are:

inspect radiation detecting equipment
operationally check radiac equipment
determine or establish radiation doses or dose rates
evaluate operational procedures in ionizing radiation producing device areas
prepare or present recommendations for posting of radiation warning placards or stickers
research or reference Code of Federal Regulation 10 Series (energy)
identify hazards resulting from X-ray operations
identify hazards resulting from ionizing radiation

They are mostly 5- and 7-skill level personnel holding E-5 paygrades and averaging 111 months time in the career ladder (see Table 3).

VIII. SUPPLY JOB (ST140, N=7). The supply specialty contains 7 members whose primary duty is performing general supply and equipment activities (64 percent of time spent). This is 6 times greater than any other job or cluster. These seven members also perform some management and supervisory activities (Duty J). Some of the tasks performed by these members are:

store equipment, tools, parts, or supplies
initiate requisitions for equipment, tools, parts, or supplies, other than special program items
evaluate serviceability of equipment, tools, parts, or supplies, other than special program items
coordinate maintenance of equipment with appropriate agencies
pick up or deliver equipment, tools, parts, or supplies

identify and report equipment or supply problems
initiate letters of justification for supply related matters
maintain documentation items requiring periodic inspections

These personnel perform an average of 23 tasks (indicative of a narrow job) and none of them are currently supervising other 4B0X1 personnel. These members are predominately of the 3-skill level and range in paygrade from E-2 through E-6. They average 91 months in the career field, 106 months total active military service, and 28 percent are in their first enlistment (see Table 3).

Comparison of Current Survey to Previous Survey

The results of this specialty job analysis were compared to the results from the OSR published in 1991. The career structure is very similar to that of the last OSR. The jobs within the cluster are quite similar, too. The water monitoring personnel are now called industrial water monitors, and the supervisory positions are being labeled as worker/supervisors since these members still perform industrial hygiene programs. The Supervisory Cluster has the same role as did the NCOIC/Supervisory Cluster in 1991. The Supervisory Cluster performs managerial tasks and directly supervises less experienced personnel. The Training Job is nearly identical to the Technical Training Job in the last survey. What was previously called a Water Monitoring Specialist Job is now called the Environmental Protection Job. The tasks performed in this newly labeled job are the same. Radiological health technicians are again an independent job (IJ), as they perform distinctive tasks. The AFSC 4B0X1 career ladder has remained stable over time.

Summary of Specialty Jobs

The jobs and clusters in this survey are similar to those discovered in the 1991 survey (in terms of general duties performed and percentages of members assigned to the job), with HAZMAT, contingency support, and supply being added. Analysis of these findings can help identify tasks that are specific to jobs and can aid in determining tasks that are obsolete or not widely performed. These findings can also isolate tasks performed by groups and can be used to determine training needs for job groups.

ANALYSIS OF CAREER LADDER PROGRESSION

An analysis of DAFSC groups, along with the study of career ladder structure, is an integral part in analyzing each occupational survey. DAFSC helps to identify both similarities and differences in task and duty performance at the skill levels. All this information may then be

used to evaluate how well AFMAN 36-2108 *Specialty Descriptions* and the Specialty Training Standard (STS) reflect what is actually being done in the career field. By comparing the duties and tasks performed in DAFSCs 4B031 and 4B051, it can be seen that there are few differences between the two skill levels.

The comparison of DAFSCs has been divided into an Active Duty sample and a National Guard study. In the Active Duty sample, there were DAFSC groups that were small in number. Due to small numbers, comparisons of the duties and tasks across the small DAFSCs were performed. These comparisons revealed extremely few differences between the skill levels. Analyzing the Active Duty 9- and 00-skill levels, it was found that the tasks performed and average time spent on duty titles were extremely similar. Since differences in the groups were minor and did not skew the data, the members of small DAFSC groups were combined in this report.

Table 6 of this report displays the distribution of DAFSC group members across career ladder jobs for both Active Duty and National Guard personnel. As this table indicates, the majority of Active Duty 3-skill level personnel are in the Industrial Hygiene Cluster (66 percent). Another large portion (16 percent) of the 3-skill level personnel are involved in the environmental protection program. As expected, few members are performing supervisory activities. In comparison, the 303 members of the 5-skill level are found largely in industrial hygiene (81 percent) with others being spread relatively evenly amongst the other duties. The 120 7-skill level personnel also are grouped heavily in the industrial hygiene program (57 percent). However, the percentage of members in the Supervisory Cluster increases (26 percent) from the small percentages of people seen in the 3- and 5-skill levels. Finally, the 9- and 00-skill levels are predominately assigned to two jobs, industrial hygiene and supervisory. A substantial amount of the personnel (42 percent) are assigned to the Industrial Hygiene Cluster. Another 33 percent are assigned to the Supervisory Cluster; almost twice as large a percentage of personnel than from the 7-skill level.

TABLE 5

COMPARISON OF CURRENT JOBS TO
1991 SURVEY JOBS

1996 JOBS	1991 JOBS
HAZMAT	ADMINISTRATION
INDUSTRIAL HYGIENE	WATER MONITORING
CONTINGENCY SUPPORT	INDUSTRIAL HYGIENE
SUPERVISORY	NCOIC/SUPERVISORY
TRAINING	RADIOLOGICAL HEALTH
ENVIRONMENTAL PROTECTION	TECHNICAL TRAINING
RADIOLOGICAL HEALTH	
SUPPLY	

In the National Guard sample, the percentage of DAFSC assignments is similar to that of the Active Duty personnel, yet has differences. The 3-/5-skill level personnel are mostly assigned to the industrial hygiene program (70 percent). However, unlike the Active Duty 3-skill level members, 20 percent of the National Guard 3/5-skill level members are assigned to contingency support. The 7-/9-skill level members are also grouped heavily in the industrial hygiene program (78 percent), with another 6 percent in contingency support and the remaining 1 percent in environmental protection.

Table 7 shows the average percent time spent on duties across DAFSC groups. The Active Duty 3-skill level personnel are spending a great deal of time in the industrial hygiene program and some in the water monitoring program. The 5-skill level personnel are still focusing the majority of their time on industrial hygiene programs and are evenly distributed amongst the other duty titles. The 7-skill level personnel make the biggest jump in terms of time spent on duties. Rather than industrial hygiene programs dominating the members' time, supervisory tasks head the list. This is closely followed by the industrial hygiene program and then time is spread throughout the rest of the duties. The 9-/00-skill level personnel spend over half their time on supervisory activities (57 percent). Industrial hygiene again is emphasized in terms of time spent (13 percent).

For the National Guard, duties are more evenly distributed in terms of time spent. The 3-/5-skill level members spend 33 percent of their time on industrial hygiene programs, and also dedicate 20 percent of their time on wartime disaster tasks. Other duties receive the remaining amount of time. The 7-/9-skill level personnel also spend 33 percent of their time on industrial hygiene programs. They also spend 14 percent of their time on management duties, 10 percent of their time on wartime disaster duties (with the remainder of their time being divvied up amongst the remainder of the duties).

Active Duty Skill-Level Descriptions

DAFSC 4B031. The 158 members who make up the Active Duty 3-skill level represent 24 percent of the total survey population. These specialists perform all the duties associated with the career ladder. They perform mostly industrial hygiene tasks, but also work in all other duties. DAFSC 4B031 members perform 95 tasks on average and average 31 months TAFMS. Seventy tasks account for over 50 percent of their time on the job. Table 8 shows representative tasks performed by the group.

DAFSC 4B051. There are 303 Active Duty members who make up the 4B051 group. They are the largest DAFSC group (either active or reserve) and account for 45 percent of the total survey sample. These members are working primarily as industrial hygienists, but are also performing more supervisory activities (10 percent of their total time). As a group, the 4B051 members average 104 months TAFMS. These members perform an average of 140 tasks with 101 of those comprise over half their job time. Table 9 displays tasks representative of the group and Table 10 displays tasks which best differentiate the 3-skill level members from the 5-skill level members. Table 14 shows tasks differentiating the 7-skill level members from the 9-skill level members.

TABLE 6

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS CAREER LADDER JOB GROUPS
(AS A PERCENTAGE OF DAFSC GROUPS)*
ACTIVE DUTY PERSONNEL (N=593)

JOB GROUPS	DAFSC 4B031 (N=158)	DAFSC 4B051 (N=303)	DAFSC 4B071 (N=120)	DAFSC 4B091/ 4B000 (N=12)
I. HAZMAT JOB (N=7)	1	2	1	0
II. INDUSTRIAL HYGIENE CLUSTER (N=486)	66	81	57	42
III. CONTINGENCY SUPPORT JOB (N=7)	0	0	0	0
IV. SUPERVISORY CLUSTER (N=45)	1	3	26	33
V. TRAINING JOB (N=6)	0	2	2	0
VI. ENVIRONMENTAL PROTECTION JOB (N=41)	16	2	2	0
VII. RADIOLOGICAL HEALTH JOB (N=9)	1	3	3	0
VIII SUPPLY JOB (N=7)	2	1	1	0
IX. NOT GROUPED (N=62)	13	7	8	25

* Columns may not add to 100 percent due to rounding
() Indicates a group within a cluster
** Incumbents whose jobs differ from the identified specialty jobs

TABLE 6b

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS CAREER LADDER JOB GROUPS
(AS A PERCENTAGE OF DAFSC GROUPS)*
NATIONAL GUARD PERSONNEL
(N=75)

JOB GROUPS	DAFSC 4B051 (N=9)	DAFSC 4B071 (N=66)
I. HAZMAT JOB (N=7)	0	0
II. INDUSTRIAL HYGIENE CLUSTER (N=486)	67	78
III. CONTINGENCY SUPPORT JOB (N=7)	22	6
IV. SUPERVISORY CLUSTER (N=45)	0	0
V. TRAINING JOB (N=6)	0	0
VI. ENVIRONMENTAL PROTECTION JOB (N=41)	0	1
VII. RADIOLOGICAL HEALTH JOB (N=9)	0	0
VIII. SUPPLY JOB (N=7)	0	0
IX. NOT GROUPED (N=62)	11	15

* Columns may not add to 100 percent due to rounding
() Indicates a group within a cluster
** Incumbents whose jobs differ from the identified specialty jobs

TABLE 7

AVERAGE TIME SPENT ON DUTIES BY DAFSC GROUPS*
ACTIVE DUTY PERSONNEL
(N=593)

DUTIES	DAFSC 4B031 (N=158)	DAFSC 4B051 (N=303)	DAFSC 4B071 (N=120)	DAFSC 4B091 4B000 (N=12)
A Monitoring Drinking Water	18	8	6	2
B Environmental Monitoring	6	7	6	3
C Radiological Health Program	5	7	5	3
D Missile Ops Support	--	--	--	--
E Industrial Hygiene Programs	50	47	24	13
F Respiratory Protection	5	5	2	1
G Wartime Disaster	2	4	4	4
H Peacetime Disaster	1	1	1	1
I Medical Readiness	3	3	2	2
J Management/Supervisory	3	10	35	57
K Training	1	3	8	8
L General Administration	1	2	3	4
M Supply and Equipment	4	5	5	2

* Columns may not add to 100 percent due to rounding
\- Indicates less than 1 percent

TABLE 7b

AVERAGE TIME SPENT ON DUTIES BY DAFSC GROUPS*
NATIONAL GUARD PERSONNEL
(N=75)

DUTIES	DAFSC 4B051 (N=9)	DAFSC 4B071 (N=66)
A Monitoring Drinking Water	5	7
B Environmental Monitoring	7	10
C Radiological Health Program	4	6
D Missile Ops Support	--	--
E Industrial Hygiene Programs	33	33
F Respiratory Protection	5	3
G Wartime Disaster	20	10
H Peacetime Disaster	1	1
I Medical Readiness	7	4
J Management/Supervisory	4	14
K Training	9	6
L General Administration	1	2
M Supply and Equipment	4	4

* Columns may not add to 100 percent due to rounding
\- Indicates less than 1 percent

DAFSC 4B071. There are 120 members making up this Active Duty DAFSC group. These personnel are performing more supervisory activities while still performing industrial hygiene tasks. Table 6 indicates that these personnel spend 3 and 1/2 times (35 percent as compared to 10 percent) more time doing supervisory work than the next lowest skill level. These personnel have an average of 199 months TAFMS. On average, these members perform 172 tasks; 113 of those tasks account for 50 percent of the group's time. Table 11 lists representative tasks performed by Active Duty 7-skill level members and Table 12 shows tasks differentiating the 5- from the 7-skill level.

DAFSC 4B091/00. Twelve personnel are grouped together to make the Active Duty 4B091/ 4B000 AFSC. These personnel are acting as direct supervisors. Table 7 shows that these members spend most of their time (57 percent) on managerial/supervisory tasks. These 12 people average 258 months TAFMS. They perform roughly 162 tasks with 58 of those taking 50 percent of their time. Table 13 lists tasks representative of 9-skill level Active Duty members. Please see Table 14 for tasks that are different than those of the 7-skill level members.

National Guard Skill-Level Descriptions

DAFSC 4B051. Nine members of the ANG study are categorized as DAFSC 4B051. These nine members also perform all the duties associated with the career ladder. They perform more industrial hygiene than others, but also tasks in other duty titles with some degree of frequency. These 9 members perform an average of 174 tasks. Sixty-seven tasks performed account for over 50 percent of their time on the job. Table 15 shows representative tasks performed by the group.

DAFSC 4B071. There are 66 Guard members who make the 4B071 DAFSC. These members are performing many supervisory tasks. There are an average of 216 tasks performed by these members, with 121 of those accounting for 50 percent of their time. Table 16 shows representative tasks performed by the group and Table 17 shows tasks that differentiate between 5- and 7-skill level Guard members.

Summary

The jobs performed by the Active Duty 3- and 5-skill level members are primarily technical, though a handful of members are First-Line Supervisors (see Table 7). The 7-skill level members also perform technical jobs, but their supervisory roles are increased as they advance from the lower skill levels. The 9-/00-skill level personnel are involved mostly in supervision or training activities, though few of the 12 members perform other tasks.

The 5-skill level National Guard members are primarily technical, with great emphasis on industrial hygiene programs, and a greater emphasis (especially when compared to Active Duty personnel) on disaster readiness programs. Some of the 5-skill level members also are involved in supervisory activities. The 7-skill level members are focusing their time on all duties. All of the 13 duties receive close to the same amount of attention from the 7-skill level Guard members (see Table 7 (b)). Career ladder progression appears to be stable, as members of the 4B0X1 study seem to gradually work their way up from technical tasks to supervisory roles.

The data shows that Active Duty and Guard 5-skill level members perform the same tasks and duties. Table 18 lists the time spent on duties by members (both Active Duty and Guard) of the 5-skill level. Table 19 lists the tasks performed by both groups. However, the data suggests that Active Duty and Guard 7-skill level members do not perform the same tasks in a daily environment. Table 20 shows time spent on duties by 7-skill level members. There is a large difference in the amount of time spent on Duty J between the two groups. The Active Duty members spend 35 percent of their time on Duty J while Guard members only devote 14 percent of their time supervising. Evidence of the differences between these groups is further supported in Table 21, which lists tasks performed by the groups. Many Active Duty members perform tasks in Duty J, but few in Duty E. However, National Guard 7-skill level members perform tasks in Duty J, but also perform many in Duty E. This data implies that Active Duty 7-skill level members have more specialized jobs. Consequently, 7-skill level Guard members have a more generalized job, as they perform many more tasks than their Active Duty 7-skill level counterparts.

ANALYSIS OF AFMAN 36-2108 *SPECIALTY DESCRIPTIONS*

The results of the specialty job structure and skill-level analyses were compared to the AFMAN 36-2108 *Specialty Descriptions* (dated October 1994) for the Bioenvironmental Engineering specialty. An analysis comparing the AFSC 4B031 Specialty Description with survey data shows the document accurately reflects tasks and jobs performed. Further analyses of the 4B051, 4B071, and 4B091/4B000 AFSC Specialty Descriptions and survey data also show good agreement. At this time, no changes are recommended for the job description in terms of survey data.

ANALYSIS OF MAJCOM GROUPS

In this survey, the various MAJCOMs were compared for differences in the tasks performed or equipment used to perform duties. It was found that three jobs were specific to a MAJCOM. Radiological Health, Training, and Supply jobs were performed by members in only AFMC. All other jobs and clusters had an even distribution of personnel throughout the other MAJCOMs.

With the exception of AFSPC having greater percentage of members performing Duty D (Bioenvironmental Support of Missile Operations), it was noted that the duties performed by members across the MAJCOMs were relatively even. The paygrade distribution throughout the MAJCOMs was consistent. However, the skill level of members was different. All of the skill levels of members were consistent except for those personnel in the National Guard. Most (86 percent) of the members in the National Guard are assigned a skill level of 4B071, with another 12 percent having a 4B051 DAFSC. The remaining 2 percent of the members are of other skill levels. Members in all MAJCOMs expressed high job interest. Furthermore, the calculations performed and support equipment used was evenly distributed throughout the various MAJCOMs. Table 22 displays those calculations and support equipment that are not evenly performed or used by the MAJCOM groups.

TRAINING ANALYSIS

Occupational survey data can be an integral source of information used to make training programs. Modification of these training programs can assist first-term personnel in many ways (easier to understand, more relevant, etc.). Factors that are useful in evaluating training can be jobs performed by first-enlistment personnel, distribution of first-enlistment personnel across the career ladder, percentages of first-enlistment personnel performing specific tasks, and TE and TD ratings provided by experienced personnel in the 4B0X1 career ladder (see **SURVEY METHODOLOGY**). To assist in the examination of the AFSC 4B0X1 STS, technical training personnel from Brooks AFB TX matched tasks from the AFSC JI to appropriate sections of these documents. The following information reports on first-enlistment personnel who are on active duty status.

First-Enlistment Personnel

There were 194 personnel in their first enlistment, 29 percent of the survey population. The majority of the first-enlistment personnel are in the Industrial Hygiene program (70 percent). Another 15 percent of the first-enlistment personnel are in environmental protection, and 1 percent are in supply. The remaining 12 percent of first-enlistment personnel are not grouped (see Figure 2). A list of tasks commonly performed by group members is found in Table 26. Table 27 shows a partial list of support equipment used by large numbers of first-enlistment personnel. Equipment used by high numbers of personnel includes calculators, noise dosimeters, air sampling pumps, and sound level meters. Many of the tasks performed by the members of this group correlate to the equipment used. Tasks and equipment listed in Tables 26 and 27 are considered important training items, due to the high percent members performing. Also, because large percentages of the first-enlistment personnel are performing industrial hygiene programs, training programs should emphasize this duty category.

TABLE 8

REPRESENTATIVE TASKS PERFORMED BY DAFSC 4B031
ACTIVE DUTY
(PERCENT MEMBERS PERFORMING)

TASKS		4B031 (N=158)
E248	Calibrate air sampling pumps	76
E322	Perform noise dosimetry	75
E255	Calibrate noise dosimeters	74
E349	Research Material Safety Data Sheets (MSDSs)	73
E331	Prepare annual industrial hygiene results	69
E259	Calibrate sound level meters	68
E300	Identify hazardous noise sources	67
E293	Evaluate shop HAZCOM programs	66
E261	Collect breathing zone or personal air samples	66
E306	Inventory chemicals	65
E267	Construct or maintain industrial case files, other than tab "F"	63
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	63
E292	Evaluate results of noise measurements	63
E332	Prepare baseline industrial hygiene reports	60
E305	Interview shop personnel	60
A5	Collect potable water samples	58
E282	Evaluate hearing protection devices	58
E328	Perform sound level measurements	58
E325	Perform periodic ventilation measurements	56
E344	Record results of industrial hygiene surveys	56
E339	Prepare or present recommendations for noise hazards controls	56
E291	Evaluate results of air sample analyses	56
A62	Perform pH determinations	52
A53	Perform chlorine level determinations	50

TABLE 9

REPRESENTATIVE TASKS PERFORMED BY DAFSC 4B051
ACTIVE DUTY
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 4B051 (N=303)
E349	Research Material Safety Data Sheets (MSDSs)	82
E248	Calibrate air sampling pumps	80
E255	Calibrate noise dosimeters	79
E292	Evaluate results of noise measurements	79
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	78
E322	Perform noise dosimetry	78
E261	Collect breathing zone or personal air samples	77
E331	Prepare annual industrial hygiene reports	78
E293	Evaluate shop HAZCOM programs	77
E259	Calibrate sound level meters	77
E300	Identify hazardous noise sources	76
E306	Inventory chemicals	75
E345	Research Air Force Occupational Safety and Health (AFOSH) standards	74
E305	Interview shop personnel	74
E267	Construct or maintain industrial case files, other than tab "F"	72
E332	Prepare baseline industrial hygiene reports	72
E328	Perform sound level measurements	72
E260	Collect area air samples from industrial environment	71
E282	Evaluate hearing protection devices	71
E303	Identify risk of chemical exposures	69
E344	Record results of industrial hygiene surveys	69
E320	Perform instantaneous noise measurements	69
E343	Prepare special industrial hygiene reports	69
E352	Review industrial case files	63

TABLE 10

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 4B031 AND 4B051
ACTIVE DUTY PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 4B031	DAFSC 4B051	DIFFERENCE
A5	Collect potable water samples	58	44	14
A10	Collect water samples from water trucks	31	18	13
A78	Record results of bacteriological analyses of water samples	43	31	12
A62	Perform pH determinations	52	40	12
**********				
J447	Conduct supervisory performance feedback sessions	3	40	-37
J519	Supervise military personnel	3	39	-36
J449	Counsel subordinates concerning personal matters	4	37	-33
E265	Conduct AF forms 190 (Occupational Illness/Injury Report) investigations	19	51	-32
K531	Conduct OJT	15	46	-31
E290	Evaluate pregnant workers	27	58	-31
K542	Evaluate progress of trainees	3	32	-29
J489	Evaluate personnel for compliance with performance standards	3	32	-29
J522	Write performance reports or supervisory appraisals	2	30	-28
E250	Calibrate combustible-gas indicators	23	50	-27
J452	Determine or establish work assignments or priorities	6	33	-27
J499	Interpret policies, directives, or procedures for subordinates	3	30	-27
K533	Counsel trainees on training progress	3	30	-27
K533	Counsel trainees on training progress	3	30	-27
C170	Calculate radio frequency radiation (RFR) hazard distances	11	37	-26
E343	Prepare special industrial hygiene reports	43	69	-26
J498	Inspect personnel for compliance with military standards	4	30	-26
K546	Maintain training records or files	3	28	-25
G375	Brief field officials concerning potential health hazards	13	38	-25
J490	Evaluate personnel for promotion, demotion, reclassification, or special awards	2	27	-25
J447	Establish performance standards for subordinates	2	27	-25
E326	Perform presurveys of local exhaust systems	31	56	-25

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY DAFSC 4B071
ACTIVE DUTY
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 4B071 (N=120)
J503	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	83
J452	Determine or establish work assignments or priorities	83
J449	Counsel subordinates concerning personal matters	83
J447	Conduct supervisory performance feedback sessions	83
J442	Conduct general meetings, such as staff meetings, briefings, conferences or workshops	82
J519	Supervise military personnel	82
J455	Develop or establish work schedules	80
J450	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	75
J523	Write recommendations for awards or decorations	75
J502	Participate in councils, boards, or committee meetings, such as the facility boards or environment protection committees	74
J489	Evaluate personnel for compliance with performance standards	74
J454	Develop or establish work methods or procedures	73
J439	Assign personnel to work areas or duty positions	73
E345	Research Air Force Occupational Safety and Health (AFOSH) standards	69
K531	Conduct OJT	68
E349	Research Material Safety Data Sheets	63
E350	Research OSHA regulations	63
J459	Direct administrative functions	63
E352	Review industrial case files	60
J439	Assign personnel to work areas or duty positions	59
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	53
K537	Develop training materials or aids	43

TABLE 12

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 4B051 AND 4B071
ACTIVE DUTY PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 4B051	DAFSC 4B071	DIFFERENCE
E322	Perform noise dosimetry	78	40	38
E306	Inventory chemicals	75	43	32
E331	Prepare annual industrial hygiene reports	78	46	32
E255	Calibrate noise dosimeters	79	48	31
E300	Identify hazardous noise sources	76	46	30
E282	Evaluate hearing protection devices	71	41	30
E332	Prepare baseline industrial hygiene reports	72	43	29
E318	Perform illumination measurements	56	28	28
E320	Perform instantaneous noise measurements	69	41	28
E313	Perform baseline ventilation measurements	68	40	28
E248	Calibrate air sampling pumps	80	52	28
**********				
J440	Assign sponsors for newly assigned personnel	9	67	-58
J439	Assign personnel to work areas or duty positions	16	73	-57
J442	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	25	82	-57
J471	Draft budget requirements	9	63	-54
J480	Evaluate budget requirements	10	64	-54
J455	Develop or establish work schedules	27	80	-53
J444	Conduct self-inspections or self-assessments	19	70	-51
J516	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	21	72	-51
J452	Determine or establish work assignments or priorities	33	83	-50
J523	Write recommendations for awards or decorations	25	75	-50
J493	Evaluate work schedules	18	68	-50
J494	Evaluate workload requirements	18	68	-50
J459	Direct administrative functions	14	63	-49
J446	Conduct supervisory orientations for newly assigned personnel	24	73	-49
J451	Determine or establish publication requirements	12	60	-48

TABLE 13

REPRESENTATIVE TASKS PERFORMED BY DAFSC 4B091/4B000
ACTIVE DUTY
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 4B091/ 4B000 (N=12)
J459	Direct administrative functions	100
J503	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	100
J499	Interpret policies, directives, or procedures for subordinates	100
J490	Evaluate personnel for promotion, demotion, reclassification, or special awards	100
J502	Participate in councils, boards, or committee meetings, such as base facility boards or environment protection committees	92
J480	Evaluate budget requirements	92
J442	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	92
J450	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	92
J444	Conduct self inspections or self assessments	92
J452	Determine or establish work assignments or priorities	92
J454	Develop or establish work methods or procedures	92
J449	Counsel subordinates concerning personal matters	92
J489	Evaluate personnel for compliance with performance standards	92
J513	Plan self inspection or self assessment programs	92
J471	Draft budget requirements	92
J455	Develop or establish work schedules	92
J484	Evaluate job related suggestions	92
J446	Conduct supervisory orientations for newly assigned personnel	92
J476	Establish organizational policies, such as OIs or standard operating procedures (SOPs)	83
J514	Review drafts of regulations, manuals, or other directives	83
J505	Plan briefings, conferences, or workshops	83
J493	Evaluate work schedules	83
J511	Plan or schedule work assignments or priorities	83
J519	Supervise military personnel	83
J483	Evaluate job or position descriptions	75
J498	Inspect personnel for compliance with military standards	75
J486	Evaluate logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	75

TABLE 14

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 4B071 AND 4B091/4B000
ACTIVE DUTY PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 4B071	DAFSC 4B091/4B000	DIFFERENCE
K531	Conduct OJT	68	25	43
E259	Calibrate sound level meters	51	17	34
E261	Collect breathing zone or personal air samples	49	17	32
E255	Calibrate noise dosimeters	48	17	31
E260	Collect area air samples from industrial environment	46	17	29
E283	Evaluate illumination measurements	37	8	29
E270	Determine or establish administrative controls for chemical hazards	53	25	28
E328	Perform sound level measurements	44	17	27
E326	Perform presurveys of local exhaust systems	36	8	28
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	53	25	28
**********				
J513	Plan self-inspection or self-assessment programs	44	92	-48
J484	Evaluate job related suggestions	46	92	-46
J459	Direct administrative functions	63	100	-37
J438	Annotate time and attendance sheets for civilian employees	22	58	-36
K528	Brief organizational personnel concerning training programs or matters	30	67	-37
J505	Plan briefings, conferences, or workshops	48	83	-35
J501	Maintain or update contingency plans, mobility plans, or base support plans	48	83	-35
J483	Evaluate job or position descriptions	41	75	-34
J457	Develop resource protection programs	41	75	-34
J518	Supervise civilian employees	17	50	-33
J458	Develop self-inspection or self assessment program checklists	51	83	-32
I430	Participate as a member of readiness exercise evaluation teams (REETs) or base exercise evaluation teams (BEETs)	26	58	-32
J495	Indorse performance reports or supervisory appraisals	45	75	-30
J497	Initiate personnel action requests	45	75	-30
J525	Write staff studies, surveys, or routine reports, other than training or inspection reports	54	83	-29
J499	Interpret policies, directives, or procedures for subordinates	72	100	-28

TABLE 15

REPRESENTATIVE TASKS PERFORMED BY DAFSC 4B051
NATIONAL GUARD
(PERCENT MEMBERS PERFORMING)

TASKS		4B051 (N=9)
G385	Don or Doff personal protective equipment	100
G381	Determine field water potability	100
E248	Calibrate air sampling pumps	100
E260	Collect area air samples from industrial environment	100
E261	Collect breathing zone or personal air samples	100
E325	Perform periodic ventilation measurements	89
G388	Identify chemical warfare agents	89
G374	Assist in identification of biological warfare agents	89
G378	Calculate field chlorination levels	89
E349	Research material safety and data sheets (MSDSs)	89
E318	Perform illumination measurements	89
A62	Perform pH determinations	89
E295	Evaluate ventilation rates	89
E322	Perform noise dosimetry	89
E255	Calibrate noise dosimeters	89
E259	Calibrate sound-level meters	89
B94	Collect air samples for environmental analyses	78
E328	Perform sound level measurements	78
I422	Administer or practice basic first aid	78
G392	Identify water sampling requirements to determine contamination of water systems	78
I425	Maintain personal mobility bags and kits	67
G402	Perform wartime decontamination operations	67
G386	Evaluate methods used to protect water under field conditions	67
I434	Perform patient carries using litter method	67
G373	Assemble or disassemble decontamination stations	67

TABLE 16

REPRESENTATIVE TASKS PERFORMED BY DAFSC 4B071
NATIONAL GUARD
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 4B071 (N=66)
E349	Research Material Safety Data Sheets (MSDSs)	90
E345	Research Air Force Occupational Safety and Health (AFOSH) standards	85
E322	Perform noise dosimetry	85
G385	Don or doff personal protective equipment	85
E259	Calibrate sound level meters	84
E300	Identify hazardous noise sources	84
E306	Inventory chemicals	84
E328	Perform sound level measurements	84
E255	Calibrate noise dosimeters	84
E248	Calibrate air sampling pumps	84
G388	Identify chemical warfare agents	84
E293	Evaluate shop HAZCOM programs	81
E305	Interview shop personnel	81
E292	Evaluate results of noise measurements	81
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	81
E248	Calibrate air sampling pumps	80
E255	Calibrate noise dosimeters	79
E267	Construct or maintain industrial case files, other than tab "F"	79
E260	Collect area air samples from industrial environment	79
E292	Evaluate results of noise measurements	78
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	78
E322	Perform noise dosimetry	78
E261	Collect breathing zone or personal air samples	78
E331	Prepare annual industrial hygiene reports	78
G408	Train medical personnel on NBC agents	73
J503	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	73
E332	Prepare baseline industrial hygiene reports	72
E344	Record results of industrial hygiene surveys	72

TABLE 17

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 4B051 AND 4B071
NATIONAL GUARD PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 4B031	DAFSC 4B051	DIFFERENCE
I428	Pack or palletize medical supplies or equipment for deployment or transport	60	18	42
K526	Administer or score tests	50	22	28
E254	Calibrate multiple-gas detectors	60	33	27
G391	Identify postattack recovery actions	60	34	26
E253	Calibrate mercury vapor detectors	30	4	26
I436	Set up or tear down isoshelters	40	15	25
G381	Determine field water potability	100	76	24
G398	Perform air sampling analyses during radiological mishaps	40	16	24
H418	Operationally check field generators	40	18	22
G378	Calculate field chlorination levels	90	69	21
G374	Assist in identification of biological warfare agents	90	69	21
**********		**********	**********	**********
J461	Direct industrial hygiene surveillance of workplaces	10	69	-59
J464	Direct radiation dosimetry programs	10	63	-53
J476	Establish organizational policies, such as OIs or standard operating procedures (SOPs)	10	61	-51
L572	Review publishing bulletins	0	51	-51
J468	Direct surveillance programs, such as industrial ventilation or microwave oven	10	58	-48
J520	Write inspection reports	10	57	-47
J482	Evaluate job hazards or compliance with AFOSH Program	20	66	-46
J463	Direct medical portion of IEX code program for hazardous materials	10	55	-45
J451	Determine or establish publication requirements	10	55	-45
J504	Participate in occupational health examination selections	0	45	-45
J448	Coordinate host-tenant or interservice agreements with appropriate agencies	10	54	-44
J503	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	30	73	-43
J502	Participate in councils, boards, or committee meetings, such as base facility boards or environment protection committees	30	73	-43
E356	Track hazardous materials	20	63	-43
J465	Direct radiation safety programs	10	52	-42

TABLE 18

DUTIES PERFORMED BY ACTIVE DUTY 4B051 AND
NATIONAL GUARD 4B051
(PERCENT TIME SPENT)*

DUTY		ACTIVE DUTY 4B051	NATIONAL GUARD 4B051
A	Monitor drinking water, swimming pools, or spas	8	6
B	Performing environmental monitoring	7	8
C	Conducting radiological health programs	7	4
D	Performing bioenvironmental support of missile operations	--	--
E	Conducting industrial hygiene programs	47	36
F	Conducting respiratory protection (RP) programs	5	5
G	Performing or practicing wartime disaster operations	4	15
H	Performing or practicing peacetime disaster operations	1	1
I	Performing medical readiness activities	3	5
J	Performing management and supervisory activities	10	4
K	Performing training activities	3	10
L	Performing general administrative and technical order system activities	2	1
M	Performing general supply and equipment activities	5	3

* Columns may not add to 100 percent due to rounding
-- Indicates less than 1 percent

TABLE 19

COMPARATIVE TASKS PERFORMED BY ACTIVE DUTY DAFSC 4B051 AND NATIONAL GUARD DAFSC 4B051 MEMBERS
(PERCENT MEMBERS PERFORMING)

TASK		ACTIVE DUTY 4B051	NATIONAL GUARD 4B051
E331	Prepare annual industrial hygiene reports	78	56
E349	Research Material Safety and Data Sheets (MSDSs)	82	89
E267	Construct or maintain industrial case files, other than tab "F"	72	67
E306	Inventory chemicals	75	67
E293	Evaluate shop HAZCOM programs	77	56
E332	Prepare baseline industrial hygiene reports	72	67
E305	Interview shop personnel	74	67
E300	Identify hazardous noise sources	76	67
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	78	67
E292	Evaluate results of noise measurements	79	67
E322	Perform noise dosimetry	78	89
E295	Evaluate ventilation rates	67	89
E344	Record results of industrial hygiene surveys	69	67
E345	Research Air Force Occupational Safety and Health (AFOSH) standards	74	78
E328	Perform sound level measurements	72	78
E255	Calibrate noise dosimeters	79	89
E259	Calibrate sound level meters	77	89
E261	Collect breathing zone or personal air samples	77	100
E248	Calibrate air sampling pumps	80	100
E352	Review industrial case files	63	56
E260	Collect area air samples from industrial environment	71	100
E294	Evaluate temperature or humidity measurements	52	67
E283	Evaluate illumination measurements	59	67
E270	Determine or establish administrative controls for chemical hazards	66	67
E291	Evaluate results of air sample analyses	74	67
E311	Perform administrative area surveys	46	56
E325	Perform periodic ventilation measurements	66	89
E285	Evaluate industrial ventilation system designs	54	67

TABLE 20

DUTIES PERFORMED BY ACTIVE DUTY 4B071 AND NATIONAL GUARD 4B071
(PERCENT TIME SPENT)*

DUTY		ACTIVE DUTY 4B071	NATIONAL GUARD 4B071
A	Monitor drinking water, swimming pools, or spas	6	6
B	Performing environmental monitoring	6	9
C	Conducting radiological health programs	5	6
D	Performing bioenvironmental support of missile operations	--	--
E	Conducting industrial hygiene programs	24	33
F	Conducting respiratory protection (RP) programs	2	4
G	Performing or practicing wartime disaster operations	4	10
H	Performing or practicing peacetime disaster operations	1	1
I	Performing medical readiness activities	2	4
J	Performing management and supervisory activities	35	14
K	Performing training activities	8	6
L	Performing general administrative and technical order system activities	3	2
M	Performing general supply and equipment activities	5	4

* Columns may not add to 100 percent due to rounding
-- Indicates less than 1 percent

TABLE 21

COMPARATIVE TASKS PERFORMED BY ACTIVE DUTY DAFSC 4B071 AND NATIONAL GUARD DAFSC 4B071 MEMBERS
(PERCENT MEMBERS PERFORMING)

TASK		ACTIVE DUTY 4B071	NATIONAL GUARD 4B071
J503	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	83	73
J461	Direct industrial hygiene surveillance of workplaces	53	68
J482	Evaluate job hazards or compliance with AFOSH Program	54	65
J442	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	82	59
J520	Write inspection reports	48	56
J459	Direct administrative functions	63	51
J463	Direct medical portion of IEX code program for hazardous materials	38	55
J452	Determine or establish work assignments or priorities	83	56
J502	Participate in councils, boards, or committee meetings, such as base facility boards or environment protection committees	74	73
J476	Establish organizational policies, such as OIs or standard operating procedures (SOPs)	63	61
J443	Conduct safety inspections of equipment or facilities	54	49
J475	Establish administrative files, such as correspondence files or classified files	47	53
E349	Research material safety and data sheets (MSDSs)	63	89
E267	Construct or maintain industrial case files, other than tab "F"	45	79
E306	Inventory chemicals	43	83
E331	Prepare annual industrial hygiene reports	46	77
E345	Research Air Force Occupational Safety and Health (AFOSH) standards	69	85
E344	Record results of industrial hygiene surveys	47	71
E352	Review industrial case files	60	74
E268	Coordinate industrial hygiene issues with appropriate agencies, other than unions	51	65
E245	Assign chemical issue exception (IEX) codes	46	77
E350	Research OSHA regulations	63	74
E305	Interview shop personnel	50	80
E293	Evaluate shop HAZCOM programs	51	80

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD ratings, coupled with percentages of first enlistment personnel performing tasks, serve as tools when determining changes or adjustments in training. To assist in this determination, the Automated Training Indicator (ATI) is computed for all 577 tasks in this survey inventory. ATI combines first-enlistment percent members performing tasks, and TE and TD data to compute training decisions based on AETCI 36-2601. Numbered on an 18-point scale (with 1 being the lowest level of training indicated) an ATI reading of 8 or less leads to a training decision of OJT only. For example, if a task has low TE and TD ratings and low percent members performing, then a low ATI rating is assigned to that task. For a more complete description of TE and TD ratings, see the Task Factor Administration section in **SURVEY METHODOLOGY**.

The tasks having the highest TE ratings covered calibrating support equipment, collecting potable water, determining field water potability, preparing noise dosimetry, and preparing industrial hygiene reports. A complete listing of the highest TE rated tasks is found in Table 23.

The tasks with the highest TD ratings are evaluating radiation accidents, investigating fish kills, directing disposal of radioactive waste, investigating suspected laser overexposures, and investigating suspected RFR overexposures. Most of these tasks are not recommended for first-enlistment personnel due to the very low percentage of member performing. Table 24 lists the tasks with the highest TD ratings.

Table 25 documents examples of tasks with the highest ATI ratings. These tasks are performed by large numbers of first-enlistment personnel and the corresponding TE ratings are high (above 5.28). These tasks are highly recommended for training in the basic course.

Specialty Training Standard (STS)

Normally, for an item to be included on the STS it must have tasks matched by at least 20 percent of the first-job, first-enlistment, 5-, or 7-skill level members. Using this as a standard, it was seen that most of the areas in the STS were supported. Some examples of STS items not being supported were collecting environmental samples (28d4d), reviewing case file history of occupational exposure to ionizing radiation (25c4c), and identifying community noise problems (20f2d5a). Also, an entire series of entries in paragraphs 14f and 20f were not supported. Table 28 shows examples of STS elements that have matched inventory tasks with low percent members performing values and moderate to low TE ratings. These and other unsupported items are recommended for consideration by SMEs for possible deletion from the STS based on the data. Training personnel should carefully review all areas of the STS to determine which areas are suitable for deletion.

There were several elements in the STS which had an entry level code associated, but had very few first-job or first-enlistment personnel performing the tasks. For example, item 9h has two tasks matched to it (research industrial regulations, and research EPCRA materials). The

proficiency code attached to item 9h is "a", suggesting a task knowledge training requirement. Since there are few members performing either task assigned to the item, it is suggested that the proficiency code be switched to "-", indicating training by OJT only. Table 29 lists further examples of STS items identified for review.

Table 30 displays some tasks not matched to the STS which have a criterion group with greater than 20 percent members performing them. These tasks range from all duty titles. Because of the higher percentage of members performing the tasks, it may indicate that these tasks may need to be included in the STS. These tasks may already fit under an STS paragraph but simply were not referenced to it or they may be functions not currently reflected in any STS element. The data indicate a review of the STS is necessary for the possible insertion of these tasks in the next STS revision.

JOB SATISFACTION ANALYSIS

A critical tool in examining any career ladder's success is personal job satisfaction. Data from job satisfaction studies can be used by career ladder managers to gain a better understanding of what factors effect job performance. In this case, career managers can examine job satisfaction to determine job performance of personnel. This OSR examined five satisfaction factors. These factors expressed job interest, utilization of talents and training, sense of accomplishment, and reenlistment intentions. Table 31 displays job satisfaction indicators for AFSC 4B0X1 TAFMS groups and a comparative sample group consisting of medical AFSCs surveyed in 1995. Table 32 compares job satisfaction for the current survey to the previous survey, conducted in 1991. Table 33 shows job satisfaction among the IJ types, clusters, and job groups within those clusters. Table 34 compares job satisfaction between the Active Duty sample and the National Guard sample.

From all indications, the personnel in the 4B0X1 career ladder are content with their current job. All statistical data is high, with many of the members expressing interest in their current job. Comparing the current survey to the medical AFSCs (see Table 31), first-enlistment members of the Bioenvironmental Engineering career field have a much higher sense of accomplishment. Nearly 20 percent more of the members in the 4B0X1 AFSC reported that they felt a sense of accomplishment. However, it must also be noted that almost 20 percent less of the 49-96 month members planned on reenlistment.

Also, examining the current survey to the one conducted in 1991 reveals that job satisfaction remains high (see Table 32). All factors analyzed were comparable to the previous survey. This would indicate that training standards have not been compromised since the previous survey and that members of the career field are properly utilized. Proper utilization of personnel leads to high job satisfaction.

Furthermore, job satisfaction was analyzed in the individual jobs and clusters. This data is useful in breaking down the career ladder and analyzing job satisfaction at the job and cluster level (see Table 33). By doing this, career ladder experts can pinpoint any jobs or clusters with low job satisfaction and make necessary adjustments. In this survey, all jobs and clusters reported high job satisfaction. Also, another key indication of job satisfaction is reenlistment intentions. All jobs and clusters reported high reenlistment intentions, except for the supervisory and training jobs. The percentages of members planning on reenlistment was below 50. However, this may be offset because the percentage of members opting for retirement increased sharply compared to the other jobs. The supervisory and training jobs have the first and second highest average TAFMS. Lower reenlistment intentions in the supervisory cluster and training IJ are the result of more experienced members of the career ladder retiring.

Continuing, job satisfaction was compared between Active Duty members and National Guard members (see Table 34). The data indicates that members of both Active Duty and National Guard are satisfied with their job. However, in all five satisfaction factors, the members of the National Guard had higher ratings. Of particular interest were the reenlistment intentions of the two groups. National Guard members had a very high percentage of personnel planning on reenlistment, whereas the Active Duty members had low reenlistment intentions. In Table 33, it was noted that reenlistment intentions may be low in the Supervisory Cluster because of the increased members planning on retirement. However, this was not the case when comparing Active Duty and National Guard members. Reenlistment intentions were over 6 times lower in the Active Duty sample than the National Guard.

TABLE 22

CALCULATIONS/SUPPORT EQUIPMENT
NOT EVENLY DISTRIBUTED AMONGST MAJCOM GROUPS
(PERCENT MEMBERS PERFORMING)

SUPPORT EQUIPMENT USED	USAFE	AETC	PACAF	ACC	AMC	AFMC	AFSPC	GUARD
Black lights	61	26	28	19	32	15	13	23
Coliwasas	58	64	74	68	40	23	45	62
Detectors, chemical M256	64	32	52	55	32	22	24	79
Generators, portable	70	65	63	49	61	39	63	27
Meters, AN/PDR 56 Radiac	39	45	74	55	36	21	26	43
Meters, hypergolic fuel	0	0	0	0	1	0	13	0
Meters, light	76	62	69	67	63	39	45	70
Meters, microwave oven	55	61	48	53	47	24	45	36
Paper, m8	61	39	52	60	35	25	29	75
Quantitative fit-test machine, portacount	58	36	70	55	58	36	50	13
Thermometers	42	38	43	40	29	23	39	60
Aeromedical services information management system (ASIMS)	55	71	59	73	72	25	53	77

TABLE 23

TASKS RATED HIGHEST IN TRAINING EMPHASIS (TE)

TASKS		TRAINING EMPHASIS*	PERCENT PERFORMING FIRST JOB (N=78)	PERCENT PERFORMING FIRST ENLISTMENT (N=194)	TASK DIFFICULTY**
E248	Calibrate air sampling pumps	7.38	69	77	4.37
E255	Calibrate noise dosimeters	7.21	71	77	3.96
G381	Determine field water potability	7.19	21	27	5.34
A5	Collect potable water samples	7.14	64	58	2.27
E322	Perform noise dosimetry	7.00	68	80	4.58
E331	Prepare annual industrial hygiene reports	7.00	56	72	5.64
E332	Prepare baseline industrial hygiene reports	6.95	41	64	6.48
E261	Collect breathing zone or personal air samples	6.95	54	68	4.69
E250	Calibrate combustible-gas indicators	6.91	13	27	4.46
E259	Calibrate sound-level meters	6.89	68	70	3.51
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	6.83	47	65	5.00
E257	Calibrate oxygen deficiency meters	6.83	13	23	4.08
E249	Calibrate carbon monoxide detectors	6.74	19	31	4.27
A49	Perform bacteriological analyses of water for total coliform using membrane filter technique	6.74	24	21	3.95
A53	Perform chlorine level determinations	6.70	60	51	2.26
E267	Construct or maintain industrial case files, other than tab "F"	6.68	55	66	4.71
E260	Collect area air samples from industrial environment	6.66	46	60	4.46
F368	Perform quantitative fit-testings	6.66	33	39	5.01
G388	Identify chemical warfare agents	6.66	19	32	5.16
F367	Perform qualitative fit-testings	6.66	31	36	4.59
G385	Don or Doff personal protective equipment	6.61	28	41	3.76
E254	Calibrate multiple-gas detectors	6.53	15	23	4.80
E313	Perform baseline ventilation measurements	6.53	40	56	5.77

TABLE 24

TASKS RATED HIGHEST IN TASK DIFFICULTY (TD)

TASKS		TASK DIFFICULTY	PERCENT PERFORMING FIRST ENLISTMENT (N=194)	DAFSC 4B051 (N=312)	DAFSC 4B071 (N=186)	TRAINING EMPHASIS*
C186	Evaluate radiation accidents, such as laboratory spills	7.20	4	7	10	3.06
B132	Investigate fish kills	6.90	6	9	10	2.87
C179	Direct disposal of radioactive waste	6.88	4	7	25	1.74
C202	Investigate suspected laser overexposures	6.88	4	7	11	3.29
C203	Investigate suspected RFR overexposures	6.80	9	22	30	3.55
J471	Draft budget requirements	6.73	3	9	57	1.02
C206	Monitor radioisotope permit programs	6.71	3	6	25	2.17
E273	Determine or establish lead abatement methodologies	6.70	5	12	21	2.66
J480	Evaluate budget requirements	6.66	2	10	59	1.25
A38	Maintain certification of state-certified water laboratories	6.65	11	10	12	3.19
C201	Investigate abnormal exposures, exposures above action levels, or overexposures to ionizing radiation	6.65	15	22	28	3.53
J462	Direct medical evaluations of chemical or radiological incidences or disasters	6.63	2	4	28	1.44
B153	Prepare verbal or written reports on Emergency Planning and Community Right-to-Know Act (EPCRA) materials	6.61	4	5	16	1.83
E285	Evaluate industrial ventilation systems designs	6.58	42	55	52	4.87
B113	Develop or update waste analysis plans	6.55	5	10	24	2.10
E281	Evaluate ergonomic hazards	6.54	57	63	49	4.91
C177	Determine or establish ionizing radiation shielding requirements	6.52	6	11	21	2.51
C166	Calculate exponential radiation decay	6.49	4	7	11	2.83
E332	Prepare baseline industrial hygiene reports	6.48	64	72	53	6.95
G400	Perform nuclear detonation plottings for radiological contamination distribution	6.47	5	12	16	3.78
J473	Draft supplements or changes to directives, such as regulations, manuals, or indexes	6.39	2	7	35	1.00

TABLE 25

EXAMPLE TASKS HIGH IN AUTOMATED TRAINING INDICATOR (ATI) RATINGS

TASKS		PERCENT 1ST ENL (N=194)	TNG EMPH*	TASK DIFF**	ATI***
E305	Interview shop personnel	65	6.19	4.32	18
E322	Perform noise dosimetry	80	7.00	4.58	18
E291	Evaluate results of air sample analyses	57	6.28	5.28	18
E260	Collect area air samples from industrial environment	60	6.66	4.46	18
E261	Collect breathing zone or personal air samples	68	6.96	4.69	18
E278	Evaluate contact or absorption hazards	52	5.72	5.41	18
E295	Evaluate ventilation rates	54	6.40	5.17	18
E328	Perform sound level measurements	62	6.36	4.17	18
E345	Research Air Force Occupational Safety and Health (AFOSH) standards	56	5.77	5.04	18
E282	Evaluate hearing protection devices	63	5.91	4.72	18
E267	Construct or maintain industrial case files, other than tab "F"	66	6.68	4.71	18
E332	Prepare baseline industrial hygiene reports	64	6.96	6.48	18
E349	Research material safety and data sheets (MSDSs)	74	5.87	4.41	18
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	65	6.83	5.00	18
E303	Identify risk of chemical exposures	54	6.04	5.50	18
E320	Perform instantaneous noise measurements	55	6.04	4.06	18
E313	Perform baseline ventilation measurements	56	6.53	5.78	18
E292	Evaluate results of noise measurements	67	6.23	4.86	18
E331	Prepare annual industrial hygiene reports	72	7.00	5.64	18
E344	Record results of industrial hygiene surveys	57	6.30	4.70	18

* Training emphasis (TE) has an average of 3.57 and a standard deviation of 1.71 (high TE ratings are 5.28 and above)

** Task difficulty (TD) has an average of 5.0 and a standard deviation of 1.0 (high TD ratings are 6.0 and above)

*** Automated training indicator (ATI) ratings are based on high percent members performing for first term members, high training emphasis (TE), and sufficient task difficulty (TD)

FIRST ENLISTMENT JOB DISTRIBUTION

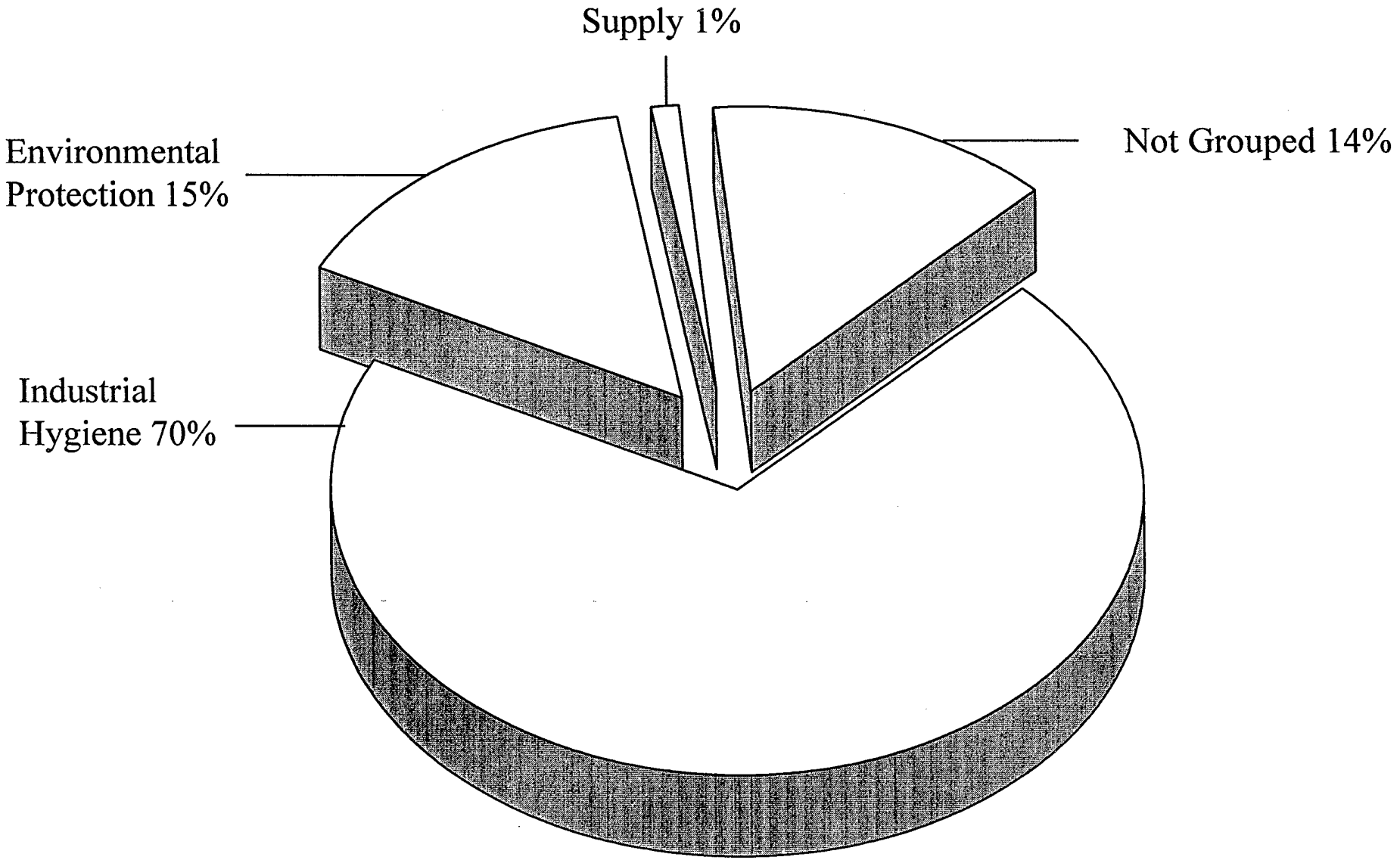

FIGURE 2

TABLE 26

REPRESENTATIVE TASKS PERFORMED BY DAFSC 4B0X1
AIRMEN WITH 1-48 MONTHS TAFMS

TASKS		PERCENT MEMBERS PERFORMING (N=194)
E322	Perform noise dosimetry	80
E255	Calibrate noise dosimeters	77
E248	Calibrate air sampling pumps	77
E349	Research Material Safety and Data Sheets (MSDSs)	74
E331	Prepare annual industrial hygiene reports	72
E306	Inventory chemicals	70
E259	Calibrate sound level meters	70
E300	Identify hazardous noise sources	70
E293	Evaluate shop HAZCOM programs	69
E261	Collect breathing zone or personal air samples	68
E292	Evaluate results of noise measurements	67
E267	Construct or maintain industrial case files, other than tab "F"	66
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	65
E305	Interview shop personnel	65
E332	Prepare baseline industrial hygiene reports	64
E282	Evaluate hearing protection devices	63
E328	Perform sound level measurements	62
E260	Collect area air samples from industrial environment	60
E339	Prepare or present recommendations for noise hazards controls	58
A5	Collect potable water samples	58
E291	Evaluate results of air sample analyses	57
E344	Record results of industrial hygiene surveys	57
E345	Research Air Force Occupational Safety and Health (AFOSH) standards	56
E325	Perform periodic ventilation measurements	56
E320	Perform instantaneous noise measurements	55
E295	Evaluate ventilation rates	54
A62	Perform pH determinations	54
E303	Identify risk of chemical exposures	54
E270	Determine or establish administrative controls for chemical hazards	52
A53	Perform chlorine level determinations	51

TABLE 27

SUPPORT EQUIPMENT USED BY FIRST-ENLISTMENT PERSONNEL
(1-48 MONTHS TAFMS)

EQUIPMENT	PERCENT 1ST ENL PERFORMING (N=220)
Calculators	90
Noise dosimeters	86
Air sampling pumps	85
Sound level meters	79
Air sampling sorbent tubes, such as charcoal tubes	77
Computer equipment	74
Detector tubes	74
Rubber gloves	71
Detector tube pumps	69
Water Globe Temperature Testers (WBGTs)	69
Sound level calibrators	65
Chlorine pH test kits	65
Cameras	64
Membrane filters	64
Refrigerators	63
Light meters	61
Radio equipment	61
Octave band noise analyzers	60
Bacteriological water kits	60
Laboratory glassware	54
Rubber aprons	

TABLE 28

EXAMPLE STS PERFORMANCE ELEMENTS REFLECTING
LOW PERCENT MEMBERS PERFORMING TASKS
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENTS/TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB (N=78)	1ST ENL (N=194)	DAFSC 4B051 (N=303)	DAFSC 4B071 (N=120)	TASK DIFF**
0137 12a(3) Perform cancellations and conversions of units using exponential powers	4.96	1	7	11	15	4.52
C212 Perform unit conversions						
0165 14b(1) Clarification and softening process 0166 14b(2) Disinfection process 0167 14b(3) Fluoridation						
A88 Survey water treatment process or equipment	3.85	12	11	10	13	5.18
0184 14f(2)(c) Select and prepare sampling containers						
A71 Prepare bacteriological sample containers	4.89	14	15	13	8	3.52
0189 14f(2)(f)2 Prepare buffer solution						
A72 Prepare buffer solutions	4.34	12	11	9	5	4.49
0190 14f(2)(f)3 Prepare dilution water						
A74 Prepare dilution water	4.38	15	13	10	6	4.26

* Training emphasis (TE) has an average of 3.57 and a standard deviation of 1.71 (high TE ratings are 5.28 and above)
** Task difficulty (TD) has an average of 5.0 and a standard deviation of 1.0 (high TD ratings are 6.0 and above)

TABLE 28 (CONTINUED)

EXAMPLE STS PERFORMANCE ELEMENTS REFLECTING
LOW PERCENT MEMBERS PERFORMING TASKS
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENTS/TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB (N=78)	1ST ENL (N=194)	DAFSC 4B051 (N=303)	DAFSC 4B071 (N=120)	TASK DIFF**
0191 14f(2)(f)4 Prepare culture media						
A71 Prepare bacteriological sample containers	4.89	14	15	13	8	3.52
0195 14f(2)(g)3 Multiple Tube fermentation						
A46 Perform bacteriological analyses of water for fecal coliform using multiple tube fermentation technique	4.11	1	4	5	3	4.92
A51 Perform bacteriological analyses of water for total coliform using multiple tube fermentation technique	4.11	1	4	5	3	4.82
A45 Perform bacteriological analyses of water for fecal coliform using MMO-MUG technique	3.26	3	5	4	3	4.41
A50 Perform bacteriological analyses of water for total coliform using MMO-MUG technique	3.19	3	3	4	4	4.21
A47 Perform bacteriological analyses of water for fecal streptococcus using membrane filter technique	3.13	4	6	5	3	4.65

* Training emphasis (TE) has an average of 3.57 and a standard deviation of 1.71 (high TE ratings are 5.28 and above)
** Task difficulty (TD) has an average of 5.0 and a standard deviation of 1.0 (high TD ratings are 6.0 and above)

TABLE 28 (CONTINUED)

EXAMPLE STS PERFORMANCE ELEMENTS REFLECTING
LOW PERCENT MEMBERS PERFORMING TASKS
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENTS/TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB (N=78)	1ST ENL (N=194)	DAFSC 4B051 (N=303)	DAFSC 4B071 (N=120)	TASK DIFF**
0196 14f(2)(g)4 MMO-MUG						
A45 Perform bacteriological analyses of water for fecal coliform using MMO-MUG technique	3.26	3	5	4	3	4.41
A50 Perform bacteriological analyses of water for total coliform using MMO-MUG technique	3.19	3	3	4	4	4.21
A47 Perform bacteriological analyses of water for fecal streptococcus using membrane filter technique	3.13	4	6	5	3	4.65
0204 14f(3)(c) Select and prepare sample containers						
A73 Prepare chemical or radiological sample containers	4.87	3	7	17	19	3.55
0253 16c(3)(e)1 Calibrate and use field chemical analysis kits						
B90 Calibrate direct reading environmental laboratory (DREL) test kits	4.11	12	13	17	17	4.58
B143 Perform dissolved oxygen tests	3.53	8	8	12	8	4.55
B142 Perform chemical tests on surface waters	3.09	4	5	5	5	5.20
B141 Perform chemical tests on sewage	2.23	4	3	2	4	5.27

* Training emphasis (TE) has an average of 3.57 and a standard deviation of 1.71 (high TE ratings are 5.28 and above)
** Task difficulty (TD) has an average of 5.0 and a standard deviation of 1.0 (high TD ratings are 6.0 and above)

TABLE 28 (CONTINUED)

EXAMPLE STS PERFORMANCE ELEMENTS REFLECTING
LOW PERCENT MEMBERS PERFORMING TASKS
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENTS/TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB (N=78)	1ST ENL (N=194)	DAFSC 4B051 (N=303)	DAFSC 4B071 (N=120)	TASK DIFF**
0555 20f(5)(c)2 Hazard distance						
0556 20f(5)(c)3 Determine maximum permissible exposures (MPE)						
0557 20f(5)(c)4 Determine nominal ocular hazard distance						
0559 20f(5)(c)6 Classify lasers						
C183 Evaluate operational procedures in laser areas	3.40	8	10	17	13	6.28

* Training emphasis (TE) has an average of 3.57 and a standard deviation of 1.71 (high TE ratings are 5.28 and above)
** Task difficulty (TD) has an average of 5.0 and a standard deviation of 1.0 (high TD ratings are 6.0 and above)

TABLE 29

EXAMPLE STS ELEMENTS REQUIRING REVIEW OF 3-SKILL LEVEL PROFICIENCY CODES

STS ELEMENTS (WITH SELECTED SAMPLE TASKS)	PROF CODE	TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB (N=78)	PERCENT MEMBERS PERFORMING 1ST ENL (N=194)	TASK DIFF**	ATI***
0092 9g Maintain and use OSHA reference files						
E346 Research Code of Federal Regulation 29 Series (Labor)	a	4.77	18	29	5.26	15
E347 Research Code of Federal Regulation 49 Series (Transportation)		3.91	6	13	5.67	7
0171 14e(1) Laboratory certification						
A40 Operationally check incubators	A B	5.19	24	24	2.48	3
A42 Operationally check sterilizers		4.74	13	14	2.37	3
A41 Operationally check refrigerators		4.11	17	18	2.00	3
A38 Maintain certification of state-certified water laboratories		3.19	8	11	6.66	2

* Training Emphasis (TE) has an average of 3.57 and a standard deviation of 1.71 (high TE ratings are 5.28 and above)

** Task Difficulty (TD) has an average of 5.00 and a standard deviation of 1.00 (high TD ratings are 6.00 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high Training Emphasis (TE), and sufficient Task Difficulty (TD)

TABLE 29 (CONTINUED)

EXAMPLE STS ELEMENTS REQUIRING REVIEW OF 3-SKILL LEVEL PROFICIENCY CODES

STS ELEMENTS (WITH SELECTED SAMPLE TASKS)	PROF CODE	TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB (N=78)	PERCENT MEMBERS PERFORMING 1ST ENL (N=194)	TASK DIFF**	ATI***
0256 16c(3)(e)4 pH						
B92 Calibrate pH meters	1a	5.36	22	22	3.93	9
B93 Calibrate specific ion meters		3.55	0	2	4.48	2
B142 Perform chemical tests on surface waters		3.09	4	5	5.20	2
B141 Perform chemical tests on sewage		2.23	4	3	5.27	2
0813 28d(4)(h) Bioassay sampling results						
H421 Record bio-assay sampling results from radiologically contaminated areas or personnel	A B	3.77	1	4	4.23	7
0878 28h(1)(i) Monitor personnel						
G405 Record radiation entry or exit times	2b b	4.21	4	10	4.02	7
G407 Review or develop staff contamination control procedures		2.96	1	4	5.79	2

* Training Emphasis (TE) has an average of 3.57 and a standard deviation of 1.71 (high TE ratings are 5.28 and above)

** Task Difficulty (TD) has an average of 5.00 and a standard deviation of 1.00 (high TD ratings are 6.00 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high Training Emphasis (TE), and sufficient Task Difficulty (TD)

TABLE 30

EXAMPLE TASKS WITH MORE THAN 20 PERCENT MEMBERS PERFORMING NOT MATCHED TO STS ELEMENTS
(PERCENT MEMBERS PERFORMING)

TASKS NOT REFERENCED		TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB (N=78)	1ST ENL (N=198)	DAFSC 4B051 (N=303)	DAFSC 4B071 (N=120)	TASK DIFF**
A77	Preserve drinking water samples for chemical analyses	5.57	32	31	24	19	3.71
A80	Record results of pH or disinfectant residuals	5.40	53	41	31	18	2.53
A89	Transport water samples	3.85	42	35	29	13	1.93
C191	Identify hazards resulting from laser operations	4.83	12	13	22	15	5.66
E272	Determine or establish follow up actions for air sampling results	4.98	24	40	63	48	5.79
E297	Identify chromate hazards	5.45	18	28	48	29	5.30
E322	Perform noise dosimetry	7.00	68	80	78	40	4.58
E336	Prepare or present recommendations for ergonomic hazard controls	4.47	19	34	47	38	6.31
F370	Prepare RP certifications	4.83	22	26	32	15	4.07
F371	Select appropriate RP equipment	5.94	18	24	42	31	5.15
G399	Perform field industrial hygiene	5.91	6	14	30	30	5.61
J503	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	2.21	15	25	49	83	5.67
M591	Store equipment, tools, parts, or supplies	3.87	31	38	43	42	2.51

* Training Emphasis has an average of 3.57 and a standard deviation of 1.71 (high TE ratings are 5.28 and above)
** Task Difficulty has an average of 5.00 and a standard deviation of 1.00 (high TD ratings are 6.00 and above)

TABLE 31

COMPARISON OF JOB SATISFACTION INDICATORS FOR 4B0X1 AND COMPARATIVE SAMPLE GROUP (PERCENT MEMBERS RESPONDING)*

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	1996 (N=194)	COMP SAMPLE** (N=518)	1996 (N=117)	COMP SAMPLE** (N=427)	1996 (N=282)	COMP SAMPLE** (N=725)
EXPRESSED JOB INTEREST						
INTERESTING	81	86	84	87	88	84
SO-SO	10	10	13	8	9	11
DULL	9	5	3	5	4	5
PERCEIVED UTILIZATION OF TALENTS						
FAIRLY WELL TO PERFECTLY	82	88	87	90	89	90
LITTLE OR NOT AT ALL	18	11	14	8	10	11
PERCEIVED UTILIZATION OF TRAINING						
FAIRLY WELL TO PERFECTLY	93	92	91	91	91	83
LITTLE OR NOT AT ALL	7	9	9	9	10	17
SENSE OF ACCOMPLISHMENT						
SATISFIED	72	51	61	63	72	69
NEUTRAL	10	49	12	36	7	9
DISSATISFIED	18	0	27	1	21	22
REENLISTMENT INTENTIONS						
YES, OR PROBABLY YES	57	51	62	81	67	77
NO, OR PROBABLY NO	43	49	38	9	9	9
PLAN TO RETIRE	0	0	0	10	24	14

* Columns may not add to 100 percent due to rounding

** Comparative sample of Medical AFSCs surveyed in 1995, including 4A2X1 (Biomedical Equipment Technical), 4T0X1 (Medical Laboratory), and 4T0X2 (Histopathology)

\- Indicates less than 1 percent responding

TABLE 32

COMPARISON OF JOB SATISFACTION INDICATORS
FOR CURRENT 4B0X1 PERSONNEL AND 1991 SURVEY SAMPLE GROUPS
(PERCENT MEMBERS RESPONDING)*

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	1996 (N=194)	1991** (N=262)	1996 (N=117)	1991** (N=138)	1996 (N=282)	1991** (N=229)
EXPRESSED JOB INTEREST						
INTERESTING	81	88	84	83	88	89
SO-SO	10	8	13	9	9	7
DULL	9	4	3	7	4	4
PERCEIVED UTILIZATION OF TALENTS						
FAIRLY WELL TO PERFECTLY	82	88	87	89	89	88
LITTLE OR NOT AT ALL	18	12	14	12	10	11
PERCEIVED UTILIZATION OF TRAINING						
FAIRLY WELL TO PERFECTLY	93	91	91	90	91	87
LITTLE OR NOT AT ALL	7	8	9	9	10	12
REENLISTMENT INTENTIONS						
YES, OR PROBABLY YES	57	55	62	57	67	70
NO, OR PROBABLY NO	43	45	38	43	9	8
PLAN TO RETIRE	0	0	0	0	24	21

* Columns may not add to 100 percent due to rounding
** Responses come from 907X0 personnel surveyed in 1991
\- Indicates less than 1 percent responding

TABLE 33

COMPARISON OF JOB SATISFACTION DATA FOR CLUSTERS AND JOB TYPES
(PERCENT MEMBERS RESPONDING)*

	HAZMAT	INDUSTRIAL HYGIENE CLUSTER	CONTINGENCY SUPPORT	SUPERVISORY CLUSTER
EXPRESSED JOB INTEREST:				
INTERESTING	100	87	86	84
SO-SO	0	8	14	9
DULL	0	5	0	7
PERCEIVED UTILIZATION OF TALENTS:				
FAIRLY WELL TO PERFECTLY	86	90	86	87
LITTLE OR NOT AT ALL	14	10	14	13
PERCEIVED UTILIZATION OF TRAINING:				
FAIRLY WELL TO PERFECTLY	85	95	86	84
LITTLE OR NOT AT ALL	14	5	14	16
SENSE OF ACCOMPLISHMENT:				
SATISFIED	86	72	86	69
NEUTRAL	0	8	0	11
DISSATISFIED	14	20	14	20
REENLISTMENT INTENTIONS:				
YES, OR PROBABLY YES	71	67	86	47
NO, OR PROBABLY NO	29	24	14	18
PLAN TO RETIRE	0	9	0	36

* Columns may not add to 100 percent due to rounding or lack of response
** Comparative of OSR written in 1991 of 907X0 career field
-- Indicates less than 1 percent responding

TABLE 33 (CONTINUED)

COMPARISON OF JOB SATISFACTION DATA FOR CLUSTERS AND JOB TYPES
(PERCENT MEMBERS RESPONDING)*

	TRAINING	ENVIRONMENTAL PROTECTION	RADIOLOGICAL HEALTH	SUPPLY
EXPRESSED JOB INTEREST:				
INTERESTING	83	88	100	86
SO-SO	0	12	0	14
DULL	17	0	0	0
PERCEIVED UTILIZATION OF TALENTS:				
FAIRLY WELL TO PERFECTLY	83	83	100	86
LITTLE OR NOT AT ALL	17	17	0	14
PERCEIVED UTILIZATION OF TRAINING:				
FAIRLY WELL TO PERFECTLY	83	90	100	57
LITTLE OR NOT AT ALL	17	10	0	43
SENSE OF ACCOMPLISHMENT:				
SATISFIED	83	71	89	57
NEUTRAL	0	10	11	29
DISSATISFIED	17	20	0	14
REENLISTMENT INTENTIONS:				
YES, OR PROBABLY YES	33	66	67	86
NO, OR PROBABLY NO	33	32	22	14
PLAN TO RETIRE	33	2	11	0

* Columns may not add to 100 percent due to rounding or lack of response
** Comparative of OSR written in 1991 of 907X0 career field
-- Indicates less than 1 percent responding

TABLE 34

COMPARISON OF JOB SATISFACTION DATA FOR ACTIVE DUTY AND NATIONAL GUARD PERSONNEL
(PERCENT MEMBERS RESPONDING)*

	ACTIVE DUTY (N=593)	NATIONAL GUARD (N=77)
EXPRESSED JOB INTEREST:		
INTERESTING	85	95
SO-SO	10	3
DULL	5	3
PERCEIVED UTILIZATION OF TALENTS:		
FAIRLY WELL TO PERFECTLY	87	96
LITTLE OR NOT AT ALL	13	4
PERCEIVED UTILIZATION OF TRAINING:		
FAIRLY WELL TO PERFECTLY	91	97
LITTLE OR NOT AT ALL	9	3
SENSE OF ACCOMPLISHMENT:		
SATISFIED	70	83
NEUTRAL	9	6
DISSATISFIED	21	10
REENLISTMENT INTENTIONS:		
YES, OR PROBABLY YES	62	91
NO, OR PROBABLY NO	26	4
PLAN TO RETIRE	11	4

* Columns may not add to 100 percent due to rounding or lack of response
** Comparative of OSR written in 1991 of 907X0 career field
-- Indicates less than 1 percent responding

IMPLICATIONS

In terms of tasks performed and percentages of members in general duty title, the career ladder structure has changed only very slightly since the last published OSR. DAFSC 4B031 members perform technical tasks. As these members advance to the 5-skill level, they still perform a lot of the core technical tasks, but also slowly develop their supervisory skills. Moving to the 7-skill level, they focus their efforts more on the supervisory side of the job and perform little technical work. As these members attain the skill levels of 9 and 00, they are almost purely supervisors. They spend time overseeing and training less experienced personnel. This career ladder progression is nearly identical to the progress described in the 1991 report. From all indications, the AFMAN 36-2108 *Specialty Descriptions* accurately describe the career ladder progressions 4B0X1 personnel are facing. The personnel of the 4B0X1 DAFSC seem to enjoy the Bioenvironmental Engineering Job. In general, the percentage of members planning to reenlist (who are not retiring) is high. Perceived utilization of training is also quite high for this survey sample. Perceived utilization of training indicates that these members received the proper training in the technical schools attended and that training is being properly applied on the job.

Analysis of the AFSC 4B0X1 STS reflected support for most areas, but there were a few unsupported areas. Some of the areas that are unsupported include: calibrations using different field equipment, multiple tube fermentations, clarification and softening processes, disinfection processes, and fluoridation of water. The STS items should be thoroughly examined to determine if they should be retained in the next STS or deleted. Some STS items may be critical to retain due to safety or mission critical functions though percent performance is low. The STS should also be carefully examined to determine training requirements. There were several elements with proficiency codes that were not supported by performance by first-job or first-enlistment members. Furthermore, there were several tasks that were not referenced to the STS, though participation in these tasks was high.

APPENDIX A

SELECTED REPRESENTATIVE TASKS PERFORMED BY CAREER LADDER STRUCTURE GROUPS

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TABLE I

REPRESENTATIVE TASKS PERFORMED BY
HAZMAT SPECIALISTS JOB
(ST062)

TASKS		PERCENT MEMBERS PERFORMING
E245	Assign chemical issue exception (IEX) codes	100
E349	Research material safety data sheets	100
E356	Track hazardous materials	100
E353	Review or update IEX code listings	86
E308	Monitor IEX coded materials	86
E275	Establish chemical IEX coding procedures	57
J463	Direct medical portion of IEX code program for hazardous materials	57
G374	Assist in identification of biological warfare agents	57
G385	Don or Doff personal protective equipment	57
E303	Identify risk of chemical exposures	43
K531	Conduct OJT	43
E306	Inventory chemicals	43
E345	Research Air Force Occupational Safety and Health (AFOSH) standards	43
G381	Determine field water potability	43
G388	Identify chemical warfare agents	43
E268	Coordinate industrial hygiene issues with appropriate agencies, other than unions	29
L574	Write minutes of briefings, conferences, or meetings	29
E266	Conduct hazardous communication (HAZCOM) training	29
J443	Conduct safety inspections of equipment or facilities	29
E355	Review work requests for environmental and health hazard implications	29
J502	Participate in councils, boards, or committee meetings, such as base facility boards or environment protection committees	29
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	29
E247	Assist in Occupational Safety and Health Administration (OSHA) inspections	29

TABLE II

REPRESENTATIVE TASKS PERFORMED BY
INDUSTRIAL HYGIENE CLUSTER
(ST039)

TASKS		PERCENT MEMBERS PERFORMING
E349	Research material and safety data sheets (MSDSs)	92
E292	Evaluate results of noise measurements	92
E331	Prepare annual industrial hygiene reports	90
E293	Evaluate shop HAZCOM programs	90
E286	Evaluate personal protective equipment (PPE) for chemical hazards, other than respiratory or hearing protection equipment	90
E300	Identify hazardous noise sources	89
E255	Calibrate noise dosimeters	89
E248	Calibrate air sampling pumps	89
E306	Inventory chemicals	88
E322	Perform noise dosimetry	88
E259	Calibrate sound level meters	87
E345	Research Air Force Occupational Safety and Health (AFOSH) standards	86
E261	Collect breathing zone or personal breathing samples	86
E291	Evaluate results of air sample analyses	85
E267	Construct or maintain industrial case files, other than tab "F"	84
E332	Prepare baseline industrial hygiene reports	84
E305	Interview shop personnel	84
E328	Perform sound level measurements	83
E282	Evaluate hearing protection devices	81
E260	Collect area air sample from industrial environment	81
E344	Record results of industrial hygiene surveys	80
E339	Prepare or present recommendations for noise hazards controls	80
E303	Identify risk of chemical exposures	79
E270	Determine or establish administrative controls for chemical hazards	79
E343	Prepare special industrial hygiene reports	78
E295	Evaluate ventilation rates	78
E313	Perform baseline ventilation measurements	78
E325	Perform periodic ventilation measurements	77
E320	Perform instantaneous noise measurements	77
E271	Determine or establish air sampling tactics or strategies	76
E352	Review industrial case files	74
E304	Interpret occupational exposure limit (OEL) values or negotiations	73
E281	Evaluate ergonomic hazards	73
E299	Identify ergonomic hazards	73
E350	Research OSHA regulations	73
E278	Evaluate contact or absorption hazards	72
E272	Determine or establish follow up actions for air sampling results	72
E245	Assign chemical issue exception (IEX) codes	67

TABLE III

REPRESENTATIVE TASKS PERFORMED BY
CONTINGENCY SUPPORT JOB
(ST066)

TASKS		PERCENT MEMBERS PERFORMING
G385	Don or Doff personal protective equipment	100
G381	Determine field water potability	100
G375	Brief field officials concerning potential health hazards	100
I425	Maintain personal mobility bags and kits	100
I422	Administer or practice basic first aid	100
G392	Identify water sampling requirements to determine contamination of water systems	100
G386	Evaluate methods used to protect water under field conditions	100
G388	Identify chemical warfare agents	100
G384	Direct or advise in direction of wartime decontamination operations	100
G373	Assemble or disassemble decontamination stations	100
G390	Identify facility sites, such as medical sites	100
G408	Train medical personnel on NBC agents	86
G376	Brief field officials concerning types of required decontamination	86
I432	Participate in small arms training	86
G394	Maintain ground crew ensembles	86
I437	Set up or tear down tents	86
A62	Perform pH determinations	71
A10	Collect water samples from water trucks	71
G389	Identify contaminated areas and issue appropriate warnings	71
G374	Assist in identification of biological warfare agents	71
G402	Perform wartime decontamination operations	71
I427	Operate field communication systems	71
E294	Evaluate temperature or humidity measurements	71
G403	Perform water vulnerability surveys	71
G378	Calculate field chlorination levels	71
I434	Perform patient carries using litter method	71
G399	Perform field industrial hygiene	71
H417	Maintain PPE	71
M583	Inventory equipment, tools, parts, or supplies	57
A5	Collect potable water samples	57
A53	Perform chlorine level determinations	57
K531	Conduct OJT	57
K526	Administer or score tests	57
M591	Store equipment, tools, parts, or supplies	57
K547	Personalize lesson plans	57
G404	Plot chemical warfare hazard areas	57

TABLE IV

REPRESENTATIVE TASKS PERFORMED BY
SUPERVISORY CLUSTER
(ST041)

TASKS		PERCENT MEMBERS PERFORMING
J449	Counsel subordinates concerning personal matters	96
J442	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	91
J519	Supervise military personnel	89
J499	Interpret policies, directives, or procedures for subordinates	89
J452	Determine or establish work assignments or priorities	87
J450	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	87
J503	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	84
J489	Evaluate personnel for compliance with performance standards	82
J498	Inspect personnel for compliance with military standards	82
J447	Conduct supervisory performance feedback sessions	82
J439	Assign personnel to work areas or duty areas	80
J523	Write recommendations for awards or decorations	80
J455	Develop or establish work schedules	78
J454	Develop or establish work methods or procedures	78
J522	Write performance reports or supervisory appraisals	78
J477	Establish performance standards for subordinates	76
J511	Plan or schedule work assignments or priorities	76
J493	Evaluate work schedules	76
J476	Establish organizational policies, such as OIs or standard operating procedures (SOPs)	76
J490	Evaluate personnel for promotion, demotion, reclassification, or special awards	76
J446	Conduct supervisory orientations for newly assigned personnel	76
J444	Conduct self-inspections or self-assessments	73
J459	Direct administrative functions	71
J502	Participate in councils, boards, or committee meetings, such as base facility boards or environmental protection committees	71
J494	Evaluate workload requirements	69
J515	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	69
J486	Evaluate logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	69
J480	Evaluate budget requirements	67
J471	Draft budget requirements	67
J456	Develop organizational or functional charts	56

TABLE V

REPRESENTATIVE TASKS PERFORMED BY
TRAINING JOB
(ST064)

TASKS		PERCENT MEMBERS PERFORMING
K537	Develop training materials or aids	100
K542	Evaluate progress of trainees	100
K530	Conduct formal course classroom training	83
K534	Determine training requirements	83
K540	Evaluate effectiveness of training programs, plans, or procedures	83
K533	Counsel trainees on training progress	83
J454	Develop or establish work methods or procedures	83
J516	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	83
K548	Plan or schedule training	83
K551	Procure training aids, space, or equipment	83
K531	Conduct OJT	67
K547	Personalize lesson plans	67
L557	Coordinate obtaining TDY orders with appropriate agencies	67
L564	Initiate requests for TDY orders	67
K535	Develop formal course curricula or plans of instruction (POIs)	67
K532	Conduct training conferences, briefings, or debriefings	67
K538	Develop training programs, plans or procedures	67
J450	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	67
J503	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	67
J449	Counsel subordinates concerning personal matters	67
K536	Develop performance tests	50
K529	Complete student entry or withdrawal forms	50
K526	Administer or score tests	50
K528	Brief organizational personnel concerning training programs or matters	50
J455	Develop or establish work schedules	50
K543	Evaluate training methods or techniques for instructors	50
K552	Write test questions	33
J499	Interpret policies, directives, or procedures for subordinates	33

TABLE VI

REPRESENTATIVE TASKS PERFORMED BY
ENVIRONMENTAL PROTECTION JOB
(ST050)

TASKS		PERCENT MEMBERS PERFORMING
A62	Perform pH determinations	98
A53	Perform chlorine level determinations	95
A5	Collect potable water samples	93
A78	Record results of bacteriological analyses of water samples	88
A80	Record results of pH or disinfectant residuals	88
A3	Collect bulk water samples	83
A76	Prepare water samples for shipment	83
A9	Collect water samples from swimming pools	83
A89	Transport water samples	80
A67	Perform preseason inspections of swimming pools	73
A69	Perform volatile organic chemical (VOC), synthetic organic chemical (SOC), or polychlorinated biphenyl (PCB) samplings	71
B106	Collect wastewater samples	66
A29	Interpret bacteriological analysis results of water analyzed for total coliform by membrane filter technique	66
A33	Interpret results of chemical analyses of drinking water samples	66
A77	Preserve drinking water samples for chemical analyses	63
B150	Prepare environmental samples for shipment	63
A55	Perform fluoride level determinations	61
B98	Collect monitoring-well water samples	61
A10	Collect water samples from water trucks	61
B96	Collect bulk hazardous water samples	59
A24	Interpret bacteriological analysis results of water analyzed for fecal coliform by membrane filter technique	59
A18	Evaluate disinfection or chlorination of potable water lines	59
A6	Collect water samples from aircraft watering sources	59
A82	Report water sampling results to appropriate agencies	58
A44	Perform bacteriological analyses of water for fecal coliform using membrane filter techniques	58
A49	Perform bacteriological analyses of water for total coliform using membrane filter technique	56
A83	Review lifeguard entries in swimming pool logs	56
B92	Calibrate pH meters	56
A79	Record results of chemical analyses of water samples	54
A32	Interpret bacteriological analysis results of water analyzed for total coliform by presence-absence technique	51
A86	Sterilize equipment or water bottles	49
B125	Interpret results of hazardous waste samplings	44
A48	Perform bacteriological analyses of water for total coliform using coilert technique	39

TABLE VII

REPRESENTATIVE TASKS PERFORMED BY
RADIOLOGICAL HEALTH JOB
(ST067)

TASKS		PERCENT MEMBERS PERFORMING
C195	Inspect radiation detecting equipment	100
C178	Determine or establish radiation doses or dose rates	100
C216	Prepare or present recommendations for posting of radiation warning placards or stickers	100
C220	Research or reference Code of Federal Regulation 10 Series (Energy)	100
C194	Identify hazards resulting from X-ray operations	100
C190	Identify hazards resulting from ionizing radiation producing device operations	100
C201	Investigate abnormal exposures, exposures above action levels, or overexposures to ionizing radiation	100
C167	Calculate half-life specific activities	100
C208	Operationally check radiac equipment	89
C182	Evaluate operational procedures in ionizing radiation producing device areas	89
C214	Prepare or present recommendations for ionizing radiation hazard controls	89
C184	Evaluate operational procedures in radioactive material areas	89
C192	Identify hazards resulting from radioactive operations	89
C197	Inventory ionizing radiation producing devices	89
C186	Evaluate radiation accidents, such as laboratory skills	89
C177	Determine or establish ionizing radiation shielding requirements	78
C229	Survey radioactive material storage areas	78
C219	Record results of isotope swipe analyses	78
C174	Conduct as-low-as-reasonably-achievable (ALARA) training	78
C196	Inspect radioactive materials for transport	78
C210	Perform leak testings of sealed radiological sources	78
C213	Prepare isotope swipes for shipment	78
C166	Calculate exponential radiation decay	78
C199	Inventory radioactive material sources	78
C224	Review or interpret personnel exposure data	78
C225	Review or interpret radiological leak testing results	78
C169	Calculate radiation intensities	78
C212	Perform unit conversions	67
C226	Review or interpret results of isotope swipe analyses	67
C189	Evaluate storage TLDs	67
C176	Coordinate special radiological studies with Armstrong Laboratory	67
C227	Review or interpret TLD results	67
C187	Evaluate radiological decontamination procedures of equipment, other than during disaster operations	67
C172	Calibrate pocket dosimeters or chambers	56

TABLE VIII

REPRESENTATIVE TASKS PERFORMED BY
SUPPLY JOB
(ST140)

TASKS		PERCENT MEMBERS PERFORMING
M578	Evaluate serviceability of equipment, tools, parts, or supplies, other than special program items	100
M583	Inventory equipment, tools, parts, or supplies	100
M591	Store equipment, tools, parts, or supplies	100
M589	Pick up or deliver equipment, tools, parts, or supplies	100
M575	Coordinate maintenance of equipment with appropriate agencies	100
M579	Identify and report equipment or supply problems	86
M582	Initiate requisitions for equipment, tools, parts, or supplies, other than special program items	86
M590	Research resource options	86
M587	Maintain organizational equipment or supply records, such as custodian authorization/ custody receipt listings (ca/CRLs)	86
M586	Maintain documentation on items requiring periodic inspections	86
M581	Initiate letters of justification for supply related matters	75
M584	Issue or log turn-ins of equipment, tools, parts, or supplies, other than special program items	71
M576	Coordinate supply related matters with appropriate agencies	71
M588	Maintain precision measurement equipment (PME) calibration schedules	71
M580	Initiate documentation to turn in excess or surplus property	71
M585	Maintain benchstock parts or equipment levels	43
L555	Compile data for records, reports, logs, or trend analyses	43
J503	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	43
J502	Participate in councils, boards, or committee meetings, such as base facility boards or environment protection committees	29
B094	Collect air samples for environmental analyses	29
B122	Evaluate visible air emissions	14